

NOTES FROM THE  
ROYAL BOTANIC GARDEN  
EDINBURGH

VOLUME XXVIII · No. 2 · 1968

STUDIES IN THE FLORA OF AFGHANISTAN: VII\*

Labiatae: Lam.—end.

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This paper continues the account of the Labiateae in the Afghanistan-W Pakistan area. It follows the same pattern as the two previous accounts of Labiateae in Notes R.B.G. Edinb. 26: 407–425 (1966) and l.c. 27: 149–173 (1967).

As supplements to this account, there are three appendices: 1, including taxa not dealt with in the previous parts of the Labiateae which have come to light since they were published; 2, species of doubtful generic affinity and 3, a check-list of all currently known species.

In all, twenty-seven genera are considered, including three not previously recorded from this area—*Gontscharovia*, *Lophanthus* and *Stachyopsis*. Five new species are described: two each in *Nepeta* and *Scutellaria* and one in *Eremostachys*; new combinations are made in *Nepeta*, *Origanum*, *Stachyopsis* and *Teucrium*.

**LAMIUM** L., Sp. Plant. 579 (1753); Gen. Plant. ed 5: 252 (1754).

- |   |                                 |
|---|---------------------------------|
| 1. Annual; upper leaves amplexicaul . . . . .   | 1. <i>L. amplexicaule</i> L.    |
| + Perennial; leaves not amplexicaul . . . . .   | 2                               |
| 2. Ascending or erect perennial; indumentum absent or hispid; corolla white . . . . .     | 2. <i>L. album</i> L.           |
| + Prostrate or ascending perennial; indumentum densely lanate; corolla purplish . . . . . | 3. <i>L. rhomboideum</i> Benth. |

**1. *L. amplexicaule* L.**, Sp. Plant. 579: 1753.

TYPE: "Hab. in Europae cultis" (LINN—photo!).

AFGHANISTAN. Kabul: Paghman, 2400 m, Koelz 12077; Behzud (Diwal Kol), 2800 m, Rechinger 18617. Parvan: Charikar, Neubauer 708. Nangarhar:

\* The previous parts have been published in the following periodicals: I. Arbok Univers. Bergen, Math.-Naturv. ser. 1963, 18: 1–56 (1964). II. Nytt Mag. Bot. 12: 123–134 (1965). III. Notes R.B.G. Edinb. 26: 407–425 (1966). IV. Bot. Notiser 119 (1966). V. Acta Hort. Gotob. 28: 57–63 (1966). VI. Notes R.B.G. Edinb. 27: 149–173 (1967).

Jalalabad, *Gilli* 3610; Gusalak, *Edelberg* 233. Badakshan: Faizabad, *Furse* 6201. Herat: Murghab, 500 m, *Koeie* 3510.

W PAKISTAN. Kurram: Kurram valley, *Aitchison* 212. Peshawar: Peshawar, *Deane*. Quetta: Sariab Rd., 1700 m, *Lamond* 901; Urak, *Lace* 3344. Chitral: *Stainton* 2160; Drosch, *Toppin* 84. Swat: prope Mingora, *Rechinger* 30670.

RANGE: throughout Eurasia.

**2. *L. album* L., Sp. Plant. 579: 1753.**

TYPE: "Hab. in Europae cultis" (LINN—photo!).

AFGHANISTAN. Nangarhar: Ashpi pass, *Neubauer* 1051; between Nischai and Ningalan, *Neubauer* 791.

W PAKISTAN. Swat: Utror, 2200 m, *Rechinger* 30805; Kalam, 2500 m, *Lamond* 1827. Chitral: Drosch, 3200 m, *Bowes Lyon* 184; Ziarat (Lowarai pass), 2500 m, *Stainton* 2562.

RANGE: throughout Eurasia.

**3. *L. rhomboideum* (Benth.) Benth., Lab. Gen. et Sp. 509 (1834). Ic.: Biol. Skr. 8, 1: fig. 34, 1954 (sub *Eriophyton afghanicum* Rech. f.)**

Syn.: *Erianthera rhomboidea* Benth. in Hook., Bot. Misc. 3: 380 (1833).

*Eriophyton afghanicum* Rech. f. in Biol. Skr. 8, 1: 58 (1954).

TYPE: Kanaour, *Royle*.

AFGHANISTAN. Nuristan: Magnaul, 3600 m, *Koelz* 12782 (holo *Eriophyton afghanicum*—W). Badakshan: W Wakhan, Quazi-Deh valley, 3700 m, *Roemer* 162.

W PAKISTAN. Kurram: Seratigah and Sikaram, 4000–4500 m, *Aitchison* 831. Chitral: above Marmano Shal, 4000 m, *Wendelbo*; Sora Lasht, *Bowes Lyon* 1092; Rosh Gol, NE of Tirich Mir, *Stainton* 2799.

RANGE: NE Afghanistan, W Pakistan, Kashmir, Tibet.

A very distinct high alpine species. Although no specimens of the C Asiatic *L. anomalum* Juz. (= *Erianthera anomala* Juz.) have been seen, it is probably very closely allied to *L. rhomboideum*. In Fl. URSS (21: 141, 1954) this species is said to be probably endemic to the Pamir-Alai and Tian Shan.

**LEONURUS L., Sp. Plant. 584 (1753); Gen. Plant. ed. 5: 641 (1754).**

**1. *L. cardiaca* L., Sp. Plant. 584 (1753) s.l. including *L. nuristanicus* Murata (Acta Phytotax. Geobot. 17: 73, 1958). Ic.: Fl. Afghanistan fig. 87, 1960 (sub *L. nuristanicus*).**

TYPE: "Hab. in Europae ruderatis" (LINN—photo!).

AFGHANISTAN. Nuristan: Nishei, *Edelberg* 778; Shtive, *Edelberg* 1281; Netchin-gel, 3300 m, *Edelberg* 1988; Pashki, 2500 m, *Edelberg* 1317. Kabul: Paghman valley, 2900 m, *Hedge & Wendelbo* W. 5063, *Neubauer* 692; Hauz-i Mahiha 2500 m, *Koeie* 2425.

W PAKISTAN. Kurram: Kurram valley, *Aitchison*. Chitral: Shishi (Lohigal An), 3650 m, *Bowes Lyon* 140; Bashgalian, 3050 m, *Stainton* 2698; Shokar Shal, 3500 m, *Wendelbo*; Chitral, *Harriss* 16489.

RANGE: SW Asia to the Himalayas, Europe.

No specimens of *L. nuristanicus* have been seen but the description and illustration suggest that it is merely a form of *L. cardiaca*. The character of the adpressed indumentum on the leaves was stressed by Murata but this type of indumentum occurs frequently in *L. cardiaca* throughout its range.

### LEUCAS R. Br., Prodr. 504 (1810).

**1. *L. mollissima*** [Wall. ex] Benth. in Wall., Pl. As. Rar. 1, 62 (1830).

TYPE: 'Hab Napalia et in jugo Pundua dicto' Wallich cat. 2054.

W PAKISTAN. Swat: Swat, 914 m, *Gatacre* 17413.

RANGE: W Pakistan, Nepal, India, Ceylon, Burma, Malaysia, Indo-China, China.

R. R. Stewart has reported (in litt.) two annual species, *L. nutans* Spreng. from Swat and *L. capitata* Desf. (syn. *L. cephalotes* (Roth) Spreng.), from Chitral, Dir and Swat but no specimens of either have been seen.

### LOPHANTHUS Adans., Fam. Pl. 2: 194, 572 (1763) p.p.

**1. *L. lipskyanus*** Ik.-Gal. & Nevski in Trudy Bot. Inst. Akad. Nauk URSS 1, 4: 325 (1937).

Syn.: *L. schtschurovskianus* (Rgl.) Lipsky var. *kulabensis* Lipsky in Trudy Bot. Sada 18: 83 (1901).

Several syntypes from the Pamir-Alai (LE—n.v.).

AFGHANISTAN. Badakshan: Doavi, 21 vi 1959, *Lindberg* 718.

RANGE: NE Afghanistan, Pamir-Alai.

Although very little material of *L. lipskyanus* and *L. schtschurovskianus* has been seen, they appear to be very closely allied species. The Afghan plant has been named *L. lipskyanus* on account of the narrow calyx teeth and the loose, few-flowered racemes but until type material and a range of gatherings has been examined, the identification must be considered as provisional.

*Lophanthus* is very closely allied to *Nepeta* and only differs from it in the scarcely divergent thecae and, to some extent, general facies. Its exact definition and limits have always been uncertain; different authors have rarely agreed about what it should and should not include. An example of an intermediate species is *Nepeta sessilifolia* Bge. It is similar to *L. lipskyanus* in leaves, habit, calyx structure, the clearly exerted stamens and the tendency to have resupinate flowers. It also has scarcely divergent thecae and on all these counts could equally well be considered as a *Lophanthus*. *N. sessilifolia* is only known from W Iran.

**LYCOPUS L.**, Sp. Plant. 21 (1753); Gen. Plant. ed. 5: 12 (1754).

**1. *L. europaeus* L.**, Sp. Plant. 21 (1753).

TYPE: "Hab. in Europae ripis humentibus" (LINN—photo!).

AFGHANISTAN. Parvan: Salang, *Rechinger* 31685. Badakshan: Jurm, *Frey* 473; Barak, *Yosii* 1003 (n.v.). Qataghan: Pol-i-Khomri, *Kitamura* (n.v.) Kabul: Tang-i Gharu, *Hedge & Wendelbo* W. 5096; Kabul, *Neubauer* 46. Bamian: Doab, 1400 m, *Koeie* 2879. Paktia: inter Qasim Khel et Dobandi, 3300 m, *Rechinger* 32368.

W PAKISTAN. Kurram: Kurram valley, *Aitchison*. Chitral and Swat (R. R. Stewart in litt.).

RANGE: SW Asia and Europe.

**MARRUBIUM L.**, Sp. Plant. 582 (1753); Gen. Plant. ed 5: 254 (1754).

The genus requires revision with study of all type material before definite conclusions about specific limits can be reached. With the amount of material now available it is clear that the calyx characters hitherto used for specific differentiation are very variable and often depend on the maturity of the plant (see fig. 1, c and f).

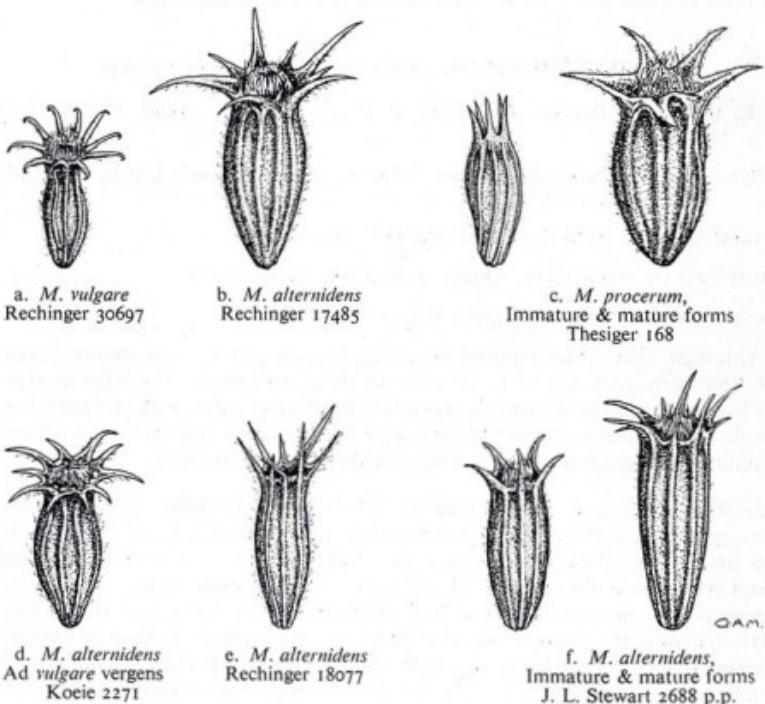


FIG. 1. Calyces of *Marrubium* species. All  $\times 4$ .

In this account, three species are recognised from our area; intermediate forms are also found and discussed under *M. alternidens*.

- |   |                                   |
|---|-----------------------------------|
| 1. Calyx teeth (6)-8-10   | 2                                 |
| + Calyx teeth 5   | <i>M. procerum</i> Bge.           |
| 2. Calyx teeth subequal; verticils 1-1.5 cm diameter                  | 1. <i>M. vulgare</i> L.           |
| + Calyx teeth alternately long and short; verticils 2-2.5 cm diameter | 2. <i>M. alternidens</i> Rech. f. |

**1. *M. vulgare* L., Sp. Plant. 583 (1753).**

TYPE: "Hab. in Europae borealioris ruderatis" (LINN.—photo!).

AFGHANISTAN. prov. ?: Mamakhel, 1220 m, Koelz 11578. Kabul: Jagdalek, 1670 m, Koelz 8245.

W PAKISTAN. Chitral: Drosh, 1370 m, Stainton 2281. Swat: between Madyan & Kolaila, Rechinger 30697. Kohat: 20-30 km W Kohat towards Thal, 500-700 m, Rechinger 30199. Kurram: between Amal Kot and Sadda, 1400 m, Rechinger 30967. Waziristan ?: J. L. Stewart 2688 p.p. Quetta: Fort Sandeman, Duthie 18980.

RANGE: Eurasia and naturalised throughout the temperate regions of the world.

**2. *M. alternidens* Rech. f. in Oest. Bot. Zeit. 99: 37 (1952).**

TYPE. Persia: Shahrud-Bustam, in declivibus australibus montium Shahvar and Nekarman (Nigarman), c. 2000 m, Rechinger 6239 (holo-W).

AFGHANISTAN. Herat: 60 km S of Herat, 1400 m, Koeie 2271. Mazar-i-Sharif: Aq Kupruk, 750 m, Hedge & Wendelbo W. 3944; Cheshma-i-Shafa, 750 m, Hedge & Wendelbo W. 3956; Cheshma-i-Shafa to Unai, 2900 m, Rechinger 18077. Bamian: Bamian, 2500 m, Hedge & Wendelbo W. 4646. Badakshan: Faizabad, Edelberg 1418. Qataghan: 8 km S of Ishkamish, 1200 m, Podlech 10748; Khost-o-Fereng, Yul Pässe, 2500 m, Podlech 11913; Pol-i-Chomri, Amsel s.n.; Anderab Valley, 1550 m, Furse 6551, Podlech 10929; Dushi to Doab, 950 m, Hedge & Wendelbo W. 4093, Rechinger 16561; Salang Pass, 2200 m, Rechinger 31628. Parvan: Panjshir Valley, Dasht-e-Revat to Darrah Khauvak, 2300 m, Hedge & Wendelbo W. 5312. Kabul: Kabul to Lataband, 2100 m, Lamond 1971, Rechinger 31101; Kuh-i-Nanagak, south of Gulbagh, Hedge & Wendelbo W. 3189; Kabul to Gardez, Altumur Pass (Kotal Tera), 26-2700 m, Lamond 2391; Paghman, 2560 m, Gilli 3593. Paktia: between Said Karam and Ahmad Khel, 22-2600 m, Rechinger 32186. Ghazni: Mokur, 2200 m, Koeie 3843; Sang-i Masha, 2500 m, Rechinger 17485; Sardalu, W of Qara-bagh, 23-2500 m, Rechinger 17342.

W PAKISTAN. Chitral: Reshun, Chitral-Mastuj track, 1830 m, Stainton 2447. Swat: Thana, between Malakand and Barikot, 700 m, Rechinger 30462, Lamond 1660. Peshawar: Khyber Pass, 650-1000 m, Rechinger 30302, Lamond 1609. Kurram: Parachinar, 1500-1700 m, Rechinger 30946. Waziristan: Wana, Duthie 15655; ?, J. L. Stewart 2688 p.p. Quetta: Hanna Valley, 2150 m, Lace

3784 (as *M. vulgare*); Sariab Road, Forest Dept. Nursery, 1700 m, *Lamond* 904, *Rechinger* 28814; Urak, *Repp* s.n.

RANGE: SW Asia to W Pakistan, Balkans.

*M. alternidens* is the most common species in our area but forms resembling the other two species do occur. The calyx teeth of *Koeie* 2271, often strongly curved and of more or less the same length, approach those of *M. vulgare* (see fig. 1, d). Occasionally, in a young state, the small calyx teeth are not or scarcely evident and it is only at maturity that a definite determination can be made. This is clearly illustrated by *J. L. Stewart* 2688 (fig. 1, f), *Rechinger* 16187, 18077 (fig. 1, e), *Hedge & Wendelbo* W. 3956 and *Podlech* 10748.

The type of the recently described *M. duabense* Murata (*Acta Phytotax. Geobot.* 22: 23 (1966)) has not been seen but from the illustration in Additional Reports, (134, Kyoto 1966) it matches these immature forms mentioned above. *M. alternidens* is found at rather lower altitudes than *M. procerum* and the locality for Murata's plant, between Bulola and Doab in Prov. Parvan, falls within its range.

**3. *M. procerum* Bge. in Mem. Acad. Sc. Petersb. 7 ser., 22, 1: 66 (1873). (Lab. Pers.)**

TYPE. Persia. Khorasan: in montosis inter pagos Derrud et Dshegar, inter urbes Nischapur et Meschhed, *Bunge & Bienert* (K, LE?, P? G?).

AFGHANISTAN. Herat: Upper Hari Rud, 2500 m, *Koelz* 3394 (n.v.). Ghorat: in jugo Shutur Khan Kotal inter Qala Ahangaran et Qala Sharak, 2725 m, *Rechinger* 18863; in jugo Kotal Nayak inter Naourak et Taiwara, 2660 m, *Rechinger* 18971. Bamian: Band-i-Amir, ad lacum Band-i Panir, 2800 m, *Rechinger* 18357; Lorinj Pass, 3050 m, *Koelz* 13748. Kabul: Besud, Kamarak Valley, 2900 m, *Thesiger* 168; Panjao, 2700 m, *Hedge & Wendelbo* W. 4909. Ghazni: in jugo Kotal Shaghanak inter Ghazni et Okak, 3400–3500 m, *Rechinger* 17814. Parvan: Panjir, inter Dasht-i-Rewat et Parian, 2600 m, *Podlech* 12284. Nuristan: Rangul Valley, 3352 m, *Thesiger* 1470. Paktia: in jugo Sata Kandao inter Gardez et Khost, 22–2800 m, *Rechinger* 32146.

RANGE: NW, C & E Afghanistan, E Iran.

Comparison with rather inadequate type material at Kew showed that the calyces of Bunge's plant are smaller than those of the cited Afghan specimens. Examination of more adequate type material and further collecting from the type locality and surrounding areas will show whether it is correct to treat the Persian and Afghan plants as conspecific.

Always of clearly perennial habit, *M. procerum* is found at a slightly higher altitudinal level than *M. alternidens*.

**MENTHA L., Sp. Plant. 576 (1753); Gen. Plant. ed. 5: 250 (1754).**

**1. *M. longifolia* (L.) Huds., Fl. Angl. 221 (1762).**

Lit.: J. Briquet, 1894: Dec. Menth. nov. (*Frag. Mon. Lab.*) in *Bull. Herb.*

*Boiss.* 2: 694–700. 1897: *Pflanzenfam.* 4, 3a: 321–322. A. Borissova, 1954: *Lab. Nov.* in *Not. Syst. Leningrad* 16: 280–285.

With the amount of material now available it is difficult to subdivide this widespread and very variable Euro-Asiatic species. So many intermediates occur between the previously recognised subspecies and varieties that it is best, at least within our area, to treat the whole complex as one polymorphic species with two apparently distinct subspecies. In the material examined it is interesting to note that about 40% are male-sterile sex forms. No attempt has been made to correlate the taxa with Borissova's treatment of the Soviet C Asiatic material.

- I. Verticils usually contiguous; leaves (at least the lower) ± sessile, seldom darker on the upper surface . . . . . subsp. *longifolia*
- + Verticils usually clearly distinct; leaves all with a ± distinct petiole, often darker on upper surface . . . . . subsp. *hymalaiensis* Briq.

#### subsp. *longifolia*

Syn.: *M. spicata* L. var. *longifolia* L., Sp. Plant. 576 (1753).

*M. incana* Willd., Enum. Pl. Hort. Berol. 609 (1809).

*M. royleana* [Wall. ex] Benth. in Wall., Pl. As. Rar. 1: 29 (1830).

*M. sylvestris* L. var. *stenostachya* Boiss., Fl. Orient. 4: 543 (1879).

Type in Hort. Cliff. (n.v.)

AFGHANISTAN. Herat: Chisht, Rechinger 19199a and b. Farah: Khormalik, between Farah and Delaram, 800 m, Rechinger 19278. Ghorat: Qala Sharak, Rechinger 19158; SW Naourak, 2480 m, Rechinger 18942. Mazar-i Sharif: Balkh, 400 m, Hedge & Wendelbo W. 3852. Bamian: Bamian to Band-i Amir, 2800–3000 m, Rechinger 18188. Orozgan: Dorahi Tarbulak, between Panjao and Lal, 2700 m, Rechinger 18801. Kandahar: Pirzada, near Kandahar, Koeie 2079. Ghazni: Sang-i Masha, 2500 m, Rechinger 17461. Kabul: 4 km E Panjao, 2800 m, Rechinger 18636; Abdullah, Bisut to Unai, 2800 m, Hedge & Wendelbo W. 5046; Kabul, road to Sarobi, 1700 m, Rechinger 16884. Parvan: Shibar, Lindberg 761. Qataghan: Salang Pass, 2200 m, Lamond 2255, Rechinger 31656; Qunduz Valley near Doshi, 850 m, Rechinger 16541. Badakshan: Khost-o Fereng, 2600 m, Podlech 11994; Minjan, 2300 m, Edelberg 1442; Wakhan, Ab-Gaj, 3200 m, Roemer 391. Paktia: Dre Kalla to Qasim Khel, Rechinger 32311.

W PAKISTAN. Chitral: Laspur Gol, SE of Mastuj, 3350 m, Stainton 3101. Quetta: Ziarat, 2440 m, viii 1889, Lace.

RANGE: Himalayas to China, SW Asia, Europe and naturalised in temperate regions throughout the world.

Although there is great variation in the specimens cited above there is a tendency to form distinct local populations. The specimens from Qataghan and Badakshan generally have large rather coarsely toothed leaves while some of the most south-westerly of our records (e.g. Rechinger 19278, 19158) have narrow lanceolate leaves. From the centre and east of the area lies a group intermediate between subsp. *longifolia* and subsp. *hymalaiensis*. These specimens have clearly petiolate leaves, but resemble subsp. *longifolia* in general facies; only five of the seventeen specimens examined in this group had fertile stamens. Included in this group are:—Afghanistan. Bamian?: Kala Sarkari, 1520 m, Koelz 13900. Kabul: Hauz-i Mahiha, Koeie 3378 p.p.; Gulbagh, 1800 m,

*Gilli* 3439; Tang-e Gharu, *Lindberg* 755. Parvan: Panshir, *Fairservis* 5. Nangarhar: Kuschtos, *Neubauer* 3267. Gardez: SE of Gardez on road to Khost, 2400–2700 m, *Rechinger* 32061. W Pakistan. Waziristan: Razmak, 1980–2280 m, *Lowndes* 5.

subsp. *hymalaiensis* Briq., *Pflanzenfam.* 4, 3a: 322 (1897). Ic. Kitamura, Fl. Afghanistan, fig. 88, (1960) (sub *M. afghanica*).

Syn.: *M. afghanica* Murata in *Acta Phytotax. Geobot.* 17: 73 (1958).

TYPE: not designated.

AFGHANISTAN. Kabul: Tang-i Gharu, *Lindberg* 775. Nangarhar: Kurder valley, branch of Pech valley, 1600–1700 m, *Neubauer* 773, 828; Kandai (Pech), *Rechinger* 32459; Kunar valley, 40–60 km NE Jalalabad, 750–900 m, *Rechinger* 32409; Barikot, 850 m, *Gilli* 3437; Jalalabad, Darunta, *Neubauer* 850.

W PAKISTAN. Chitral: Golen Gol, 2133 m, *Bowes Lyon* 28. Swat: Kalam, 2200 m, *Rechinger* 19439; Ushu, 2400 m, *Rechinger* 19519. Malakand: Malakand, 700 m, *Rechinger* 19614. Kurram: Parachinar, *R. R. Stewart* 28045; Hangu, *Y. M. Khan* 35. Quetta: Ziarat, viii 1887, *Lace* 3405 p.p.

RANGE: E Afghanistan, NW Pakistan, Himalayas, Tibet.

A much confused taxon to which different names have probably been applied in different parts of the world.

#### OTHER SPECIES RECORDED

The following are probably cultivated or escapes from cultivation:

**M. arvensis** L., Sp. Plant. 577 (1753).

AFGHANISTAN. Kabul: Kabul, 1770 m, *Gilli* 3446.

**M. spicata** L. Sp. Plant. 576 (1753) emend. Huds., Fl. Engl. 221 (1762).

AFGHANISTAN. Kabul: Kabul, cultivated, *Neubauer* 44. Kandahar: Arghandab, *Volk* 1364.

W PAKISTAN. Kurram: Parachinar, 1830 m, *R. R. Stewart* 28046.

#### MICROMERIA Benth. in Bot. Reg. 1282 (1829).

- |   |                                    |
|---|------------------------------------|
| 1. Cymes 2-several flowered; calyx 2–4 mm | 1. <i>M. biflora</i> (Ham.) Benth. |
| + Cymes 1-flowered; calyx ± 7 mm          | 2. <i>M. subulifolia</i> Rech. f.  |

1. ***M. biflora*** (Ham.) Benth., Lab. Gen. et Sp. 378 (1835–36). Ic.: Jacquemont, Voy. Ind. Bot. t. 124 (1844); Wight, Spic. Neilg. 2, t. 199 (1851).

Syn.: *Thymus biflorus* Ham. in Don, Prodr. Fl. Nep. 112 (1825).

TYPE. Nepal. 'Hab. in Suemba Nepaliae superiores'. *Hamilton*.

AFGHANISTAN. Nangarhar: Pech River at Chigha Serai, 820 m, *Gilli* 3455; Ningalam to Darim, 1300–1900 m, *Neubauer* 956; Chigha Serai to Kandai, *Rechinger* 32430. Paktia: Ali Khel, *Aitchison* (n.v.).

W PAKISTAN. Chitral: Arandu, SW of Drosch, 1219 m, *Stainton* 2309; Bundai, *Harriss* 16551. Swat: Khawazakhela to Shangla, 1300 m, *Lamond* 1696, *Rechinger* 30599, 30639; Madyan, *R. R. Stewart* 24419; Madyan to Kalam, *Rechinger* 19378; Mingora, *Ali*. Malakand: Malakand, 800 m, *Lamond* 1650, *Rechinger* 30451, *Weatherhead* 9. Peshawar: Cherat, *Lamond* 1570, *Rechinger* 30248. Kurram: Parachinar, *Afendi* 116.

RANGE: E Afghanistan, NW Pakistan, Himalayas, S India (Nilgiri Hills), China, Africa.

**2. *M. subulifolia*** Rech. f. in Biol. Skr. 8, 1: 74 (1954). Ic.: l.c. fig. 45 and fig. 43 f.

TYPE. Afghanistan. Bamian ?: Baligali Pass, 2750 m, dry cliff face, clumps, flowers prob. blue-purple, 30 viii 1939, *Koelz* 13857. (holo-W, BPI-n.v.).

RANGE: C Afghanistan.

The characters, given in the original description, of divergent thecae, posterior stamens longer than the anterior and the 15-nerved calyces are diagnostic for tribe Nepeteae rather than Saturineae including *Micromeria*. However examination of the rather inadequate Vienna specimen did not confirm these characters; the corolla studied contained an insect larva and confusion may have arisen through dissection of damaged flowers. The generic position of this interesting plant is therefore uncertain and more material is needed before its affinities can be correctly determined but it is quite likely that it does not belong to *Micromeria*.

#### NEPETA L., Sp. Plant. 570 (1753); Gen. Plant. ed. 5: 249 (1754).

With a current total of forty species, *Nepeta* is the largest genus of the Labiateae in the Afghanistan region. It includes some very distinct species and others that are extraordinarily polymorphic. As examples of the first may be cited *N. olgae* Rgl., *N. bellevii* Prain, *N. rechingeri* Hedge and *N. satureioides* Boiss. None of them has a close ally. Further examples of distinct species are two which are sometimes placed in separate genera—*N. sewerzowii* Rgl. or *Drepanocaryum sewerzowii* (Rgl.) Pojark. and *N. korshinskyi* Lipsky or *Kudrjaschevia korshinskyi* (Lipsky) Pojark. Contrasted with these taxonomically isolated and morphologically uniform species is the variation shown by such species as *N. podostachys* Benth., *N. pubescens* Benth., *N. discolor* Benth. and *N. elliptica* Benth. In this species group, it seems impossible to arrive at any kind of satisfactory classification. This mixture of distinct and indistinct species is a most interesting feature of *Nepeta* taxonomy in the Afghanistan—C Asia region. In some other parts of SW Asia, as for instance in Turkey, *Nepeta* is represented by as many or more species but here the character variation is much less and distinct relict species, for the most part, are absent. Furthermore, the close generic allies of *Nepeta*—*Lophanthus*, *Lallemandia* and *Dracocephalum*—are well represented in the area under review. Together, these facts of present day distribution, character concentration and relict concentration at least suggest the possibility of the Afghanistan—C Asia region as a centre of origin of this large Euro-Asiatic complex. The general picture is similar to that already discussed in *Salvia* (Notes R.B.G. Edinb. 26: 407–410, 1966).

Several of the species dealt with in this account are of uncertain status. Some are only known from few, and others from inadequate, gatherings. Others are Himalayan species that are at the end of their range in Afghanistan and to clarify their nomenclature and taxonomy requires a thorough re-investigation and assessment of the variation range in the Himalayan material. In yet other cases, it is essential to study the Soviet C Asiatic species and their limits.

One of the chief difficulties in the taxonomy of *Nepeta* is the absence of any stable character. Indumentum, leaf shape, calyx and corolla characters are all so variable that, very often, little reliance can be placed on them. Similarly, the general facies of the plant is often affected by its environment or even, in the case of perennial species, by the age of the plant. It seems unlikely that any 'new' character is going to give much help in trying to define natural taxa. For instance, it would be over-sanguine to expect that the biochemist, palynologist or embryologist is going to come up with a magic character. It should be accepted that within the existing taxonomic framework, there are numerous 'species' in *Nepeta* that are quite unsatisfactory to define and delimit.

One character, however, that has certainly been neglected in the past is the shape, size, and structure of the nutlets. Examination of the nutlets of a large number of gatherings showed that within a particular species there was relatively little variation in the nutlets and, frequently, there were significant differences between species. These are of such a nature that it would be quite possible to make a key to the species or species group based solely on the texture, size, and areole shape of the nutlets. Fig. 2, with a few exceptions, illustrates the nutlets of the species dealt with in this account. There seems little doubt that research into nutlet anatomy would be a rewarding and interesting task.\*

1. Annual . . . . .	2
+ Perennial . . . . .	11
2. Inflorescence capitate or subcapitate . . . . .	3
+ Inflorescence of loose axillary cymes or flowers in leaf exils . . . . .	8
3. Inflorescence and leaves covered with long floccose hairs . . . . .	4
+ Inflorescence and leaves not floccose . . . . .	5
4. Terminal inflorescence long pedunculate; plant with slender elongated internodes . . . . .	38. <i>N. spathulifera</i> Benth.
+ Terminal inflorescence not or scarcely pedunculate; internodes short . . . . .	39. <i>N. eriosphaera</i> Rech. f.
5. Bracts linear-subulate, recurved, hard . . . . .	33. <i>N. pungens</i> Benth.
+ Bracts ovate or linear-ovate, not recurved, soft . . . . .	6
6. Plant glandular; inflorescences long pedunculate . . . . .	32. <i>N. rechingeri</i> Hedge
+ Plant eglandular; inflorescences not pedunculate . . . . .	7
7. Bracts and leaves oblong-linear to linear-lanceolate . . . . .	35. <i>N. daenensis</i> Boiss.
+ Bracts and leaves ovate or ovate-lanceolate . . . . .	36. <i>N. bracteata</i> Benth.

\* A recent paper confirms this. Entitled "On the significance of the anatomical structure of the pericarp for the taxonomy of the tribe *Nepeteae*", it was published, in Russian, in *Botanicheskii Zhurnal* 52, 1: 33-41 (1967).

8. Upper leaves linear, recurved, subtending the cymes . . . . .  
 + Upper leaves ovate or lanceolate, not recurved, not subtending the cymes; cymes pedunculate . . . . . 34. *N. satureoides* Boiss.
9. Calyx oblique at base and inflated; nutlets falcate . . . . . 31. *N. sewerzowii* Rgl.
- + Calyx rounded at base, not inflated; nutlets not falcate . . . . . 10
10. Leaves rounded or cuneate at base; calyx pubescent . . . . . 30. *N. micrantha* Bge.
- + Leaves cordate at base; calyx villous . . . . . 18. *N. hindostana* (Roth) Haines
11. Inflorescence a capitulum or a continuous or slightly interrupted spike . . . . . 12
- + Inflorescence of more or less distinct verticils occasionally the terminal ones somewhat condensed, or loosely cymose . . . . . 22
12. Inflorescence a capitulum . . . . . 13
- + Inflorescence a spike . . . . . 17
13. Corolla 8–10 mm; rootstock tuberous . . . . . 37. *N. raphanorhiza* Benth.
- + Corolla more than 15 mm; rootstock never tuberous . . . . . 14
14. Leaves irregularly lobed; bracts clearly longer than calyces; prostrate or ascending scree plants . . . . . 1. *N. longibracteata* Benth.
- + Leaves regularly lobed; bracts not or scarcely longer than calyces; erect plants . . . . . 15
15. Corolla 18–24 mm with a narrow tube; leaf bases subcordate . . . . . 14. *N. glechomifolia* (Dunn) Hedge
- + Corolla c. 15 mm with a broad tube; leaf bases cuneate . . . . . 16
16. Plant greenish with a scattered indumentum; upper internodes elongated . . . . . 16. *N. pamirensis* Franch.
- + Plant greyish or whitish with a thick indumentum; upper internodes short . . . . . 15. *N. leucocyanea* Rech. f. & Koeie
17. Bracts broad, ovate, clearly longer than calyces . . . . . 18
- + Bracts narrow lanceolate or linear usually shorter than calyces . . . . . 19
18. Plant up to 100 cm high; leaves with a thin indumentum below; bracts often purple . . . . . 8. *N. laevigata* (D. Don) Hand.-Mazz.
- + Plant c. 30 cm high; leaves with a dense white indumentum below; bracts green . . . . . 7. *N. discolor* Benth.
19. Leaves elliptic in outline with a regularly serrate margin, sessile or sub-sessile . . . . . 5. *N. elliptica* Benth.
- + Leaves lanceolate, ovate or linear . . . . . 20
20. Leaves narrow linear or linear-ob lanceolate . . . . . 4. *N. ob lanceolata* Rech. f.
- + Leaves ovate or lanceolate . . . . . 21
21. Leaves 3–5 cm long, somewhat serrate; spike and stem beneath it densely pubescent . . . . . 6. *N. pubescens* Benth.
- + Leaves 1–2·5 cm long, often deeply serrate; spike glabrous or pubescent . . . . . 3. *N. podostachys* Benth.

22.	Corolla more than 15 mm long . . . . .	23
+	Corolla less than 15 mm long . . . . .	27
23.	Plant densely glandular; all leaves sessile, pectinate, serrate . . . . .	
		2. <i>N. glutinosa</i> Benth.
+	Plant not or scarcely glandular; leaves petiolate, serrate or crenate . . . . .	24
24.	Calyx deeply split with unequal teeth; terminal verticils forming capitulae . . . . .	
		23. <i>N. pinetorum</i> Aitch. & Hemsl.
+	Calyx teeth subequal; terminal verticils not condensed or forming spikes or inflorescence loosely cymose . . . . .	25
25.	Corolla yellow; corolla tube much expanded above . . . . .	
		9. <i>N. govaniana</i> (Benth.) Benth.
+	Corolla blue; corolla tube not or slightly expanded above . . . . .	26
26.	Corolla c. 15 mm long; verticils many flowered; nutlets linear . . . . .	
		11. <i>N. clarkei</i> Hook. f.
+	Corolla 20–25 mm long; verticils few-flowered; nutlets oblong . . . . .	
		10. <i>N. erecta</i> Benth.
27.	Basal leaves orbicular-cordate; petioles up to 10 cm; inflorescence a wide spreading panicle . . . . .	
		12. <i>N. floccosa</i> Benth.
+	Basal leaves short petiolate; inflorescence not paniculate . . . . .	28
28.	Inflorescence of ± loose cymes, at least the lower ones clearly pedunculate . . . . .	
		29
+	Inflorescence of usually dense many-flowered cymes, the lower ones not or shortly pedunculate . . . . .	33
29.	Herb up to 1 m; leaves large ovate, finely tomentose on both surfaces; corolla yellowish-white . . . . .	
		17. <i>N. cataria</i> L.
+	Smaller herbs with a ± dense leaf indumentum; corolla lilac or violet . . . . .	30
30.	Cauline leaves ± orbicular, subsessile; calyx straight with subequal teeth; nutlets with a ± straight horizontal areole . . . . .	
		29. <i>N. persica</i> Boiss.
+	Cauline leaves ovate; clearly petiolate; calyx curved with unequal teeth; nutlets with U- or V-shaped areoles . . . . .	31
31.	Corolla tube clearly exserted; corolla up to 14 mm; cymes many-flowered on very short peduncles . . . . .	
		22. <i>N. griffithii</i> Hedge
+	Corolla tube included or shortly exserted; corolla 6–8 mm; cymes few-flowered, distinctly pedunculate . . . . .	32
32.	Corolla tube included; cymes on arcuate-ascending peduncles . . . . .	
		19. <i>N. brachyantha</i> Rech. f. & Edelb.
+	Corolla tube shortly exserted; cymes on erect peduncles . . . . .	
		18. <i>N. hindostana</i> (Roth) Haines
33.	Leaves serrate-pectinate, sessile; calyx teeth glandular; anther cells scarcely divergent . . . . .	
		40. <i>N. korshinskyi</i> Lipsky
+	Leaves crenate or subentire, petiolate; calyx teeth eglandular; anther cells clearly divergent . . . . .	34

34. Leaves broad ovate, greenish above, pannose below; verticils covered in a thick floccose indumentum . . . . . 13. *N. olgae* Rgl.  
 + Leaves ovate or oblong, not pannose below; verticils not floccose . . . . . 35
35. Calyx without or with only rudimentary teeth . . . . . 21. *N. suavis* Stapf  
 + Calyx teeth developed . . . . . 36
36. Bracts membranous, longer than calyces; leaves up to 9 cm long; areoles of nutlets horse-shoe shaped . . . . . 24. *N. bellevii* Prain  
 + Bracts not membranous, equaling or shorter than calyces; leaves less than 3 cm; areoles of nutlets not horse-shoe shaped . . . . . 37
37. Bracts c.  $\frac{1}{3}$  of calyx length; corollas (and often calyces) violet . . . . . 20. *N. rugosa* Benth.  
 + Bracts  $\frac{1}{2}$ -1  $\times$  calyx length; corolla white, yellowish or violet . . . . . 38
38. Calyx 5 mm . . . . . 39  
 + Calyx 6-10 mm . . . . . 40
39. Bracts c. 2.5 mm; stems with few leaves . . . . . 28. *N. heterotricha* Rech. f.  
 + Bracts 4-5 mm; stems leafy . . . . . 26. *N. xylorhiza* Rech. f.
40. Calyx c. 10 mm; verticils  $\pm$  approximating; stems leafy . . . . . 27. *N. prainii* Duthie  
 + Calyx c. 6 mm; at least lower verticils distant, uppermost sometimes approximating; stems with few leaves . . . . . 25. *N. juncea* Benth.

**1. *N. longibracteata*** Benth., Lab. Gen. et Sp. 737 (1835). Ic.: Jacquemont, Voy. Ind. Bot. t. 137 (1844).

TYPE. Kashmir (?): "in lapidosis mobilibus prope Kang-rang-ghan-ti, Jacquemont" (P—n.v.)

AFGHANISTAN. Nuristan: Sanglech, 4000 m, Koelz 12637. Badakshan: W Wakhan, Quazi-Deh-Tales, 4200 m, Roemer 195; E Wakhan, Pamir-Pässe, 3900-4100 m, Roemer 353; Mt. Noshaq, Yosii 671 (n.v.).

W PAKISTAN. Chitral: Chumarkhan pass, E of Mastuj, 4000 m, Stainton 2924; Laspur (Reshun), 4400 m, Bowes Lyon 115; Barum Gol above Jamishi Ghochar, 4500 m, Jörstad.

RANGE: NE Afghanistan, Gilgit, Chitral, Kashmir, Pamir-Alai.

A very distinct high alpine scree species, recorded between 3900 and 4700 m in the area under consideration and collected up to 5000 m in Gilgit.

**2. *N. glutinosa*** Benth., Lab. Gen. et Sp. 735 (1835). Ic.: Komarov, Fl. URSS 20: t. 19, fig. 2 (1954).

TYPE. Tibet (?): "inter Poyé et Riei, Jacquemont 1713" (K).

AFGHANISTAN. Parvan: Panjshir valley, Darrah Rastagal above Mukeni, Hedge & Wendelbo W. 5156. Badakshan: Darrah-i-Parshui, 3700 m, Frey 236; Wakhan, Quazi-Deh, 3600 m, Roemer 130. Qataghan: Khost-i-Fereng, 3800 m, Podlech 11756 (male sterile sex form).

RANGE: E Afghanistan, Gilgit, Kashmir, Pamir-Alai, Tibet.

A densely glandular tuft-forming species with a 2 cm long blue or white corolla, *N. glutinosa* reaches its westerly limit in E Afghanistan. At least in Afghanistan, *N. glutinosa* has a fairly narrow altitudinal range growing between 3300 and 4000 m.

3. *N. podostachys* Benth. in DC., Prodr. 12: 372 (1848). Ic.: Bot. Tidsskr. 28: fig. 2, (1908) (sub *N. paulsenii* Briq.).

Syn.: *N. subincisa* Benth. in DC., Prodr. 12: 373 (1848).

*N. paulsenii* Briq. in Bot. Tidsskr. 28: 235 (1908).

*N. koelzii* Rech. f. in Biol. Skr. 8, 1: 34 (1954).

TYPE. Afghanistan: (possibly from Younutt near Bamian), *Griffith* (holo—K).

AFGHANISTAN. Bamian: Band-i Amir, 2800 m, *Rechinger* 18305, *Volk* 2844; Erak, *Griffith* (type of *N. subincisa*-K); Hadjigak, *Rechinger* 18502. Paktia: inter Qasim Khel et Dobandi in jugo Shutargardan, 3300 m, *Rechinger* 32367. Gardez: montes Safed Kuh, Altimur, *Rechinger* 31917. Ghazni: Sang-i Masha, *Rechinger* 17456; inter Qarabagh et Sang-i Masha, *Rechinger* 17407. Kabul: Abdullah, between Bisut and Unai, *Hedge & Wendelbo* W. 5043; Sar-e-Cheshme, *Hedge & Wendelbo* W. 4465; Unai, *Hedge & Wendelbo* W. 4546; Paghman, 4000 m, *Hedge & Wendelbo* W. 5084; Paghman, *Rechinger* 17103, *Gilli* 3512. Parvan: Panjshir valley, Darrah Shalzur, *Hedge & Wendelbo* W. 5398; Salang pass, *Kasy* 3. Nuristan: Minjan, *Edelberg* 1603; Daraim, *Koelz* 13039 (type of *N. koelzii*—W).

W PAKISTAN. Chitral: Chitral gol, *Stainton* 2684; Yarkhun, *Bowes Lyon* 1016; Tirich Mir, Barum Gol, *Wendelbo*. Kurram: Pewar Kotal, *Aitchison* 933.

RANGE: Afghanistan, W Pakistan, Pamir-Alai.

Very common in Afghanistan and represented by a large number of herbarium specimens, *N. podostachys* is the most variable of all the species discussed in this account. In leaf size, shape and degree of toothing, in indumentum, density of inflorescence, bract length, calyx length and size of teeth, flower colour and habit, there is almost unending variation. From observations made in the field and from study of about a hundred herbarium sheets, there are no clear reasons for recognition of more than one species. In some areas there is a degree of similarity in the plants collected in the same region. For example, most of the specimens from the Bamian limestone have crenate leaf margins and the leaves are thickish in texture; those from the relatively wet Nuristan area often have very sharply serrate leaf margins. But despite this tendency for plants from similar regions to have a somewhat similar general facies, formal taxonomic recognition of them would result in an unending number of taxa.

The exact specific boundary of *N. podostachys* is not always clear and, although there is no definite evidence, hybridisation and introgression may well occur with other related species such as *N. pubescens* Benth., *N. ob lanceolata* Rech. f. and *N. laevigata* (D. Don) Hand.-Mazz.

Although *N. podostachys* may be found in a variety of habitats (within a large altitudinal range), it generally grows near streams.

4. *N. oblanceolata* Rech. f. & Edelb. in Biol. Skr. 8, 1: 38 (1954). Ic.: l.c. fig. 22.

TYPE. Afghanistan: Nuristan, Derin, *Edelberg* 1739 (W, C—n.v.).

AFGHANISTAN. Badakshan: Darrah-i-Parshui, 3700 m, *Frey* 316.

W PAKISTAN. Swat: Kalam, 2750 m *R. R. Stewart* 24672. Chitral: Sahoni pass, *Siddiqi* 27098; Ziarat, *Toppin* 606.

RANGE: NE Afghanistan, Swat, Chitral.

In his field note, Frey remarked that this was a widely distributed species between 3600 and 4000 m. There is no doubt that *N. oblanceolata* is very closely related to *N. podostachys* and may only be an altitudinal form of that most variable species. Field observations are needed to determine its status.

5. *N. elliptica* [Royle ex] Benth. in Hook., Bot. Misc. 3: 378 (1833).

TYPE. Himalayas, Syen range, ann. 1832, *Royle* (K).

W PAKISTAN. Swat: beyond Ushu, *R. R. Stewart & A. Rahman*. Chitral: Droshe (Painogh), 3500 m, *Bowes Lyon* 182.

RANGE: Chitral, Swat, Kashmir, Kumaon.

This species is characterised by the ascending stems, compact terminal inflorescences and regularly crenate leaf margins; the records from Swat and Chitral are the most westerly stations for this Himalayan species.

*N. podostachys*, in some forms, approaches *N. elliptica* and the differences between them are apparently mainly those of leaf shape.

6. *N. pubescens* Benth. in DC., Prodr. 12: 373 (1848).

TYPE. Afghanistan. Bamian: Hajeeuk (Hajigak) pass, moist ravines, *Griffith* 1073a (holo—K).

AFGHANISTAN. Bamian: N side of Hajigak pass, 3000 m, *Hedge & Wendelbo* W. 4666. Kabul: Sarai Sarkharit between Unai and Hajigak passes, 2950 m, *Hedge & Wendelbo* W. 4593. Parvan: S side of Salang pass, 2700 m, *Lamond* 2179; upper Panjshir valley, 3400 m, *Podlech* 12490. Qataghan: N side of Salang pass, 2200 m, *Lamond* 2238; Andarab valley, 2250 m, *Podlech* 11036. Paktia: Hariab district, *Aitchison* 397.

RANGE: Afghanistan.

Characterised by the dense oblong spikes, the thick pubescence on the spike and below it, and the 1–2 inch caudine leaves, *N. pubescens* is similar in general facies to *N. podostachys* but can generally be distinguished by the larger, less acutely serrate leaves and the thicker indumentum on the inflorescence. Some of the extreme forms of *N. podostachys* are not always clearly different from *N. pubescens* and introgression between these species may be the cause.

*N. pubescens* was noted in the field as being a very variable species with a considerable range of habitat; the flower colour varied from blue-violet to white. It grew in wet meadows, river margins and in gravel.

7. *N. discolor* [Royle ex] Benth. in Hook., Bot. Misc. 3: 378 (1833). Ic.: Journ. Bot. 6: t. 82, fig. 1-4 (1868) (sub. *N. sabinei*).

Syn.: *N. sabinei* T. A. Schmidt in Journ. Bot. 6: 238 (1868).

TYPE. Himalayas, Syen range and Mussooree, *Royle*.

AFGHANISTAN. Badakshan: Wakhan, Badjens-Tal, Kleiner Pamir, 4200 m, *Roemer* 369.

W PAKISTAN. Chitral: Baroghil pass, 3800 m, *Stainton* 2969.

RANGE: Afghanistan, Chitral, Karakoram, Kashmir, Punjab, Nepal, Tibet.

This is the first definite record of this species from Afghanistan. It is characterised by the uninterrupted spikes, the ovate-lanceolate bracts and the serrate margins of the leaves which are often subglabrous on the upper surface and white-hoary below. In his field note, Roemer mentions that the species occurred between 3700 and 4300 m in the district east of Sarhad, Wakhan.

8. *N. laevigata* (D. Don) Hand.-Mazz., Symb. Sin. 7: 916 (1936). Ic.: Kitamura, Fl. Afghanistan fig. 90 (1960).

Syn.: *Betonica laevigata* D. Don, Prodr. Fl. Nepal. 110 (1825).

*Nepeta spicata* Benth. in Wall., Pl. As. Rar. 1: 64 (1830).

*N. nuristanica* Murata in Acta Phytotax. Geobot. 17: 74 (1958).

TYPE. Kashmir, Srinagar, *Kamroop* (? destroyed).

AFGHANISTAN. Nuristan: Rangul valley, 3350 m, *Thesiger* 1455; N of Basarak, 2350 m, *Gilli* 3422. Parvan: Panjshir valley, 2500 m, *Hedge & Wendelbo* W. 5115

W PAKISTAN. Kurram: Shendtoi, *Aitchison* 768. Swat: Kalam, *R. R. Stewart* 24673; Utror, 2500 m, *Rechinger* 19542 a, b; between Maina and Ilam mountain, *Rodin* 5485; Ushu, 2400 m, *Rechinger* 19492. Chitral: Madaglast, *Toppin* 516.

RANGE: E Afghanistan, W Pakistan, Kashmir, Himalayas (S side) to SW China.

This variable and widespread species reaches its western limit in E Afghanistan where it is a common species.

9. *N. govaniana* (Benth.) Benth., Lab. Gen. et Sp. 482 (1834).

Syn.: *Dracocephalum govanianum* [Wall. ex] Benth. in Wall., Pl. As. Rar. 1: 65 (1830).

TYPE. "Sirmore et Kamaon" *Wallich*.

W PAKISTAN. Swat: above Bahrein, 1820-2100 m, *Rodin* 5562.

RANGE: Swat, Kashmir, Hazara, Kumaon.

The Swat gathering of this distinctive yellow-flowered species is from its most westerly station.

10. *N. erecta* (Benth.) Benth., Lab. Gen. et Sp. 482 (1834).

Syn.: *Dracocephalum erectum* [Royle ex] Benth. in Hook., Bot. Misc. 3: 380 (1833).

TYPE. India, Kanaor, *Royle*.

AFGHANISTAN. Nuristan: Nishei, 2000 m, *Edelberg* 790.

W PAKISTAN. Chitral, Ziarat, *Toppin* 437.

RANGE: E Afghanistan, Chitral, Kashmir, Punjab, Kumaon.

This distinct, tall-growing, large flowered species reaches its western limits in Nuristan.

**11. *N. clarkei* Hook. f., Fl. Brit. India 4: 663 (1885).**

TYPE. Kashmir: at Tilail, 3350 m; and Kunylwan, 2280 m, *Clarke* (K).

AFGHANISTAN. Parvan: Panjshir valley, Shanz, streamsides, 2550 m, *Hedge & Wendelbo* W. 5343. Nuristan: Pashki, 2500 m, *Edelberg* 708, 1008.

W PAKISTAN. Chitral: Dorah pass, Lutko valley, 3800 m, *Stainton* 3248; Birir, riverbed, 2440 m, *Bowes Lyon* 690; Madaklasht, NE Drosch, 3660 m, *Stainton* 3113; Ziarat, *Toppin* 434. Swat: Sho Nala, 2900 m, *R. R. Stewart* 25192; Kalam, *R. R. Stewart* 24671.

RANGE: NE Afghanistan to Kashmir.

Although generally characterised by the many-flowered verticils, remote and peduncled below, approximating above, the curved 8 mm long calyx and the c. 15 mm corolla, *N. clarkei* is a very variable species particularly in corolla size. It is another of the species from the western end of the south Himalayan slopes that reaches the limit of its distribution in NE Afghanistan.

The Nuristan specimens which were named as *N. distans* Royle (e descr.) by Rechinger and cited in *Symbolae Afghanicae* are, in fact, *N. clarkei*.

**12. *N. floccosa* Benth., Lab. Gen. et Sp. 736 (1835).**

TYPE. Kashmir: inter Nako et Chango, *Jacquemont* 1921 (K).

AFGHANISTAN. Bamian: Bareki Cheidan on road to Band-e Amir, 2800 m, *Hedge & Wendelbo* W. 4712. Kabul: in fauces Kotal Mollah Jakub inter Behzud (Diwal Kol) et Panjao, 2600 m, *Rechinger* 18625. Badakshan: Wakhan, Sar-Skhaur (Langar), 2700 m, *Roemer* 36; Darrah-i-Parshui, 3400 m, *Frey* 180; Anjuman pass, 4000 m, *Podlech* 12431. Parvan: Panjshir valley, *Hedge & Wendelbo* W. 5303. Afghanistan/Pakistan: Kurram region, Sikaram, *Aitchison* 917.

W PAKISTAN. Chitral: Vedinkot, W of Baroghil pass, 3050 m, *Stainton* 2963; Laspur, (Phargam), 3050 m, *Bowes Lyon* 35; Harchin, *Toppin* 660.

RANGE: E & C Afghanistan, Chitral, Gilgit, Pamir-Alai, Kashmir, Tibet.

The following four species may be conspecific with *N. floccosa*: *N. rotundifolia* (Benth.) Benth. in DC., Prodr. 12: 392 (1848) from Kanaor; *N. gilesii* Mukerjee in Journ. Ind. Bot. Soc. 19: 85 (1940) from Gilgit; *N. pseudofloccosa*

Pojark. in Not. Syst. Leningrad 15: 293 (1953) from Darvaz; *N. vakhanica* Pojark., l.c. 296 from Soviet Wakhan.

Although no type or authentic material of these non-Afghan species has been seen, the full descriptions and, in the cases of *N. gilesii* and *N. vakhanica*, the illustrations, suggest that these are merely local variants of *N. floccosa*. If *N. rotundifolia* proves to be the same as the Afghan plant, it will have to replace the name *N. floccosa*.

A very striking species in the field on account of its round floccose leaves and the long spreading lower peduncles, *N. floccosa* varies greatly in almost every character. For example, it may be an erect plant up to 1·3 m or else it may be ascending and only 15 cm tall; the indumentum may be sparse or dense; the stems may be single or clump-forming and many; the inflorescence may be condensed into a single terminal sub-capitate head or else it may consist of many widely spaced verticils. On the basis of the fairly abundant material examined from Afghanistan, there seems no reason to recognise more than one variable species.

*N. floccosa* usually grows on hot, dry, stony slopes or mobile screes; sometimes it is a rock crevice plant.

**13. *N. olgae* Rgl. in Izv. imp. Obshch. Lyub. Estest. Antrop. Etnogr. 34, 2: 64 (1882). [Descript. Pl. Fedtsch.]**

TYPE. Turkestan, prope Ura-tube et Pachud, *O. Fedtschenko* (LE—n.v.).

AFGHANISTAN. Mazar-i Sharif: SE of Tashqurghan on road to Samangan (Aybak), 600 m, Hedge & Wendelbo W. 3980. Qataghan: W of Pol-i Khomri, 750 m, Hedge & Wendelbo W. 4052; N of Doshi, Furse 5981; Salang pass, N side, 1400 m, Lamond 2275, Rechinger 31695. Bamian: Darrah Siakar, 15 km S of Doab, 1500 m, Hedge & Wendelbo W. 3391. Badakshan: Faizabad, 300 m, Furse.

RANGE: N Afghanistan, Tian Shan, Pamir-Alai.

This very distinct and handsome species, with broad ovate leaves white woolly below and greenish above, has not previously been recorded from Afghanistan. It is apparently restricted to the north side of the Hindu Kush massif; in some areas, as for example near Pol-i Khomri, it is a frequent plant.

**14. *N. glechomifolia* (Dunn) Hedge comb. nov.**

Syn.: *Dracocephalum glechomifolium* Dunn in Kew Bull. 1921: 122, (1921).

TYPE. Chitral: Madaglast, 4200–4500 m, Toppin 564 (holo—K).

RANGE: Chitral.

The type of this species has now been examined and there is no doubt that it should be considered as a *Nepeta* and not as *Dracocephalum*. Dunn's original description of this species under *Dracocephalum* was misleading in two ways: firstly, in comparing it with *D. imberbe* Bge. which has an entirely different calyx structure of 1 large upper tooth and 4 smaller lower teeth; and

secondly, in stressing the yellow corollas whereas in fact there is no indication either from field notes or the specimen of corolla colour. The nearest allies of *N. glechomifolia* are probably *N. pamirensis* Franch. and *N. leucocyanea* Rech. f. & Koeie but they clearly differ in the shorter corollas and slightly exserted tubes. More material, especially in fruit, is needed before the affinities of *N. glechomifolia* can finally be assessed.

**15. *N. leucocyanea* Rech. f. & Koeie in Biol. Skr. 8, 1: 37 (1954). Ic.: l.c. fig. 20.**

Syn.: *N. minjanensis* Rech. f., l.c. 36.

**TYPE.** Afghanistan. Bamian (?): Koh-i Baba, 3900 m, *Koeie* 2622 (holo—W)

AFGHANISTAN. Parvan: Panjshir valley, Darrah Rastagal, 4200 m, *Hedge & Wendelbo* W. 5203; W side of Anjuman pass, 3900 m, *Hedge & Wendelbo* W. 5431. Badakshan: Darrah-i-Parshui, 3700–3900 m, *Frey* 385; Wakhan Futur Tal, 3900 m, *Roemer* 86; Minjan pass, *Koelz* 12664 (type of *N. minjanensis* Rech. f.). Bamian (?): Sard darra, 4320 m, *Gilli* 3544.

W PAKISTAN. Chitral: Borogial, *Bowes Lyon* 1011; Sora Lasht, *Bowes Lyon* 1086; Khot An, N of Mastuj, *Stainton* 2850; Tirich Mir, 4300 m, *Wendelbo*.

**RANGE:** Afghanistan, Chitral.

Although there is no doubt that *N. leucocyanea* and *N. minjanensis* are synonymous, the relationships of *N. leucocyanea* with the Pamir-Alai species *N. kukanica* Rgl., *N. pamirensis* Franch. and *N. pseudokukanica* Pojark. are not clear. Certainly these four species are very closely allied and possibly geographical races of one species. A revision of the complex throughout its area is needed before definitive names can be applied.

In Afghanistan, *N. leucocyanea* is a frequent species on rocky slopes, crevices and scree from about 3500 up to 4400 m.

**16. *N. pamirensis* Franch. in Bull. Mus. Hist. Nat. 2: 345 (1896).**

Syn.: *N. oxicola* Franch., l.c. 346.

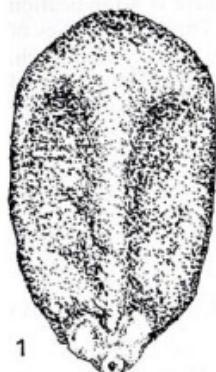
**TYPE.** Afghanistan. Badakshan: Wakhan, Bozai Gumbez, 4000 m, *Poncins* (holo P—n.v.)

AFGHANISTAN. Nuristan: Wanaspul pass, 4600 m, *Thesiger* 1589, 1562; Chamar pass, 4500 m, *Thesiger* 1360.

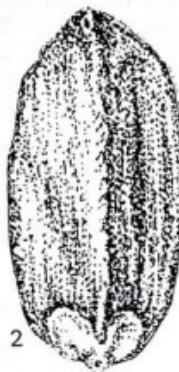
**RANGE:** Afghanistan, Gilgit, Pamir-Alai, Kashmir.

*N. pamirensis* is very closely related to *N. leucocyanea* but, with the material examined, appears to differ in the larger greener leaves, the larger calyces and thicker inflorescences.

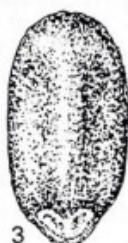
The synonym *N. oxicola* Franch. was based on a specimen gathered in 1893, like that of *N. pamirensis*, at Bozai Gumbez by the Frenchman Poncins whose few specimens from there are probably the earliest collections from Afghanistan Wakhan.



1. *N. longibracteata*  
Schmid s.n.



2. *N. glutinosa*  
Podlech 12397



3. *N. podostachys*  
Podlech 12352



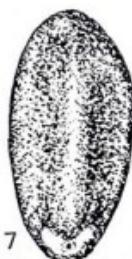
4. *N. ob lanceolata*  
Edelberg 1739



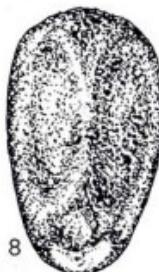
5. *N. elliptica*  
Nath 4397



6. *N. pubescens*  
Podlech 12490



7. *N. discolor*  
Duthie 12488

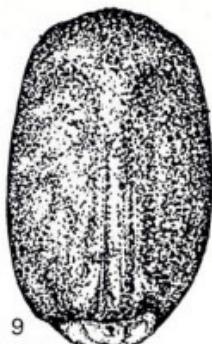


8. *N. laevigata*  
Hedge & Wendelbo 5115

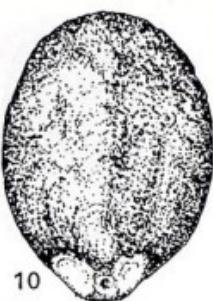
[ mm ]

FIG. 2. Nutlets of Afghanistan species of *Nepeta*.

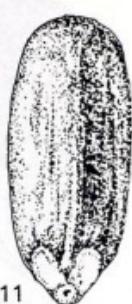
The numbers agree with the species number in the text.



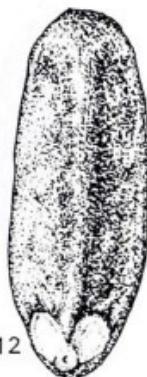
9. *N. govaniana*  
Duthie 12618



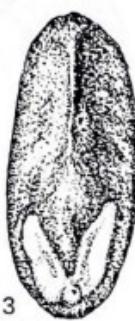
10. *N. erecta*  
Polunin 56/470



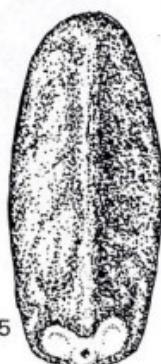
11. *N. clarkei*  
Podlech 12456



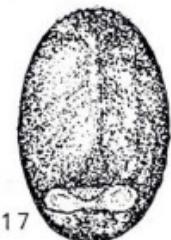
12. *N. floccosa*  
Podlech 12431



13. *N. olgae*  
Podlech 11321



15. *N. leucocyanea*  
Koelz 12664



17. *N. cataria*  
Podlech 12521

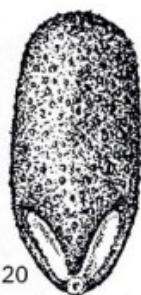


18. *N. hindostana*  
Lamond 1602

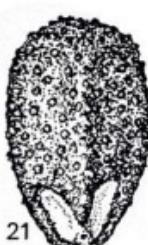


19. *N. brachyantha*  
Stainton 3196

FIG. 2. Nutlets of Afghanistani species of *Nepeta*.



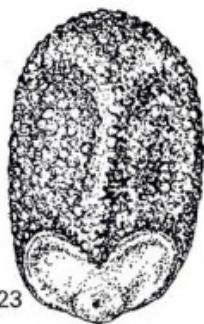
20. *N. rugosa*  
Lamond 2506



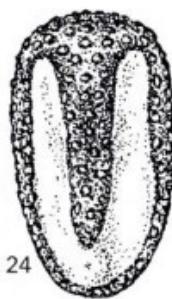
21. *N. suavis*  
Thesiger 194



22. *N. griffithii*  
Lamond 1659



23. *N. pinetorum*  
Lamond 2410



24. *N. bellevii*  
Thesiger 128



25. *N. juncea*  
Podlech 11641



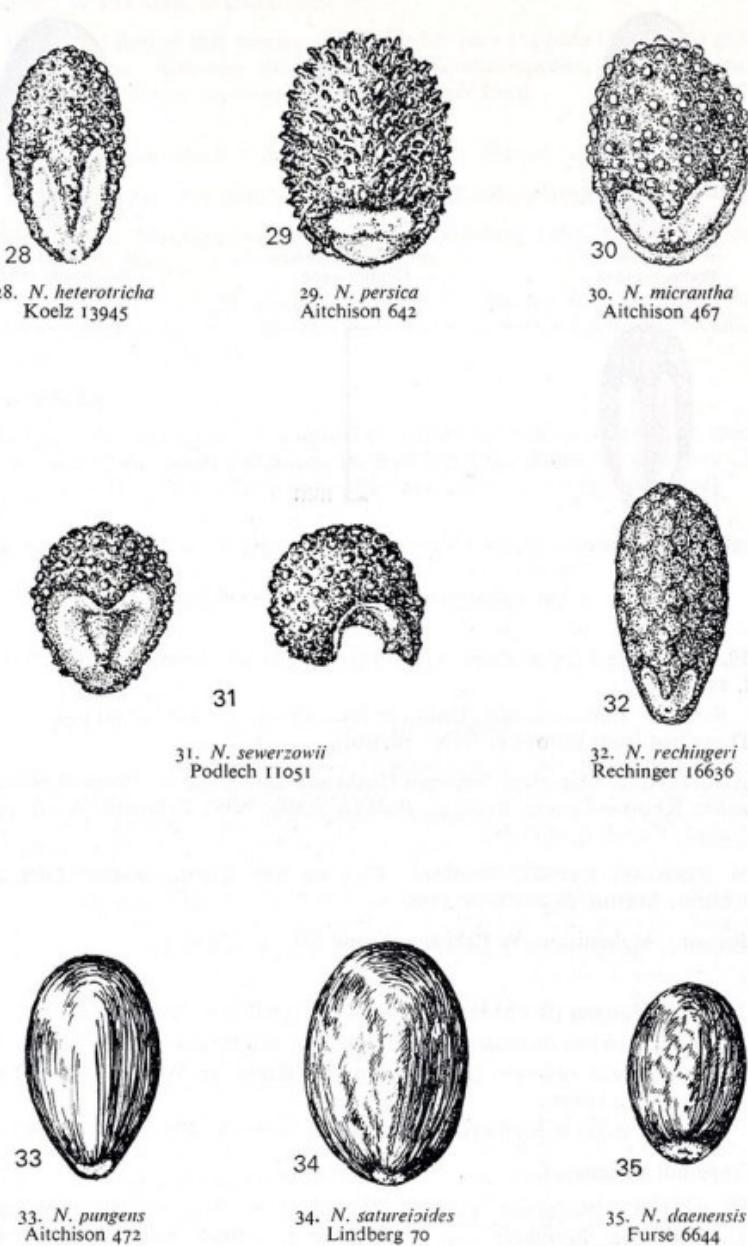
26. *N. xylorhiza*  
Koelz 14125

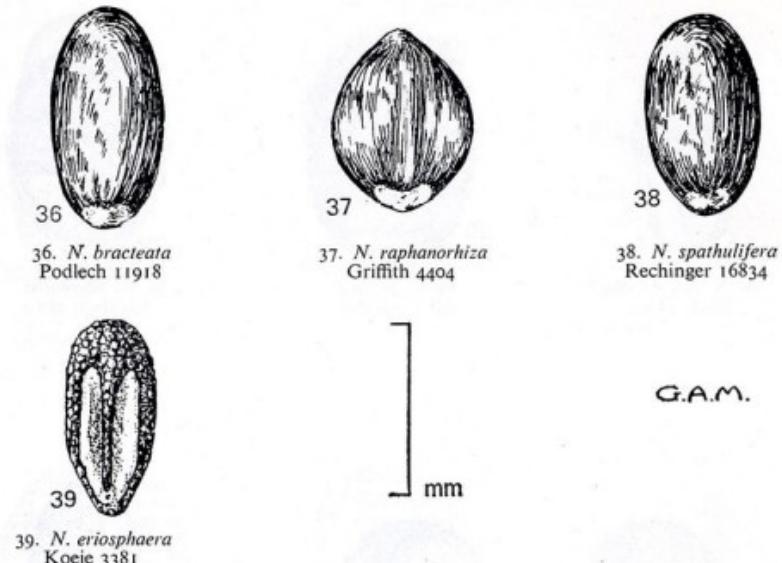


27. *N. prainii*  
Ali s.n.

[ mm ]

FIG. 2. Nutlets of Afghanistan species of *Nepeta*.

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**17. *N. cataria*** L., Sp. Plant. 570 (1753). Ic.: Reichenbach, Ic. Fl. Germ. 18: t. 1242 (1858).

Syn.: *N. calamithoides* Benth., in DC., Prodr. 12: 382 (1848) p.p.  
Described from Europe (LINN—photo!).

AFGHANISTAN. Qataghan: between Dushi and Doab, 950 m, Hedge & Wendelbo 4085; Khost-o-Fereng, 2100 m, Podlech 11889. NW: Zehnadir, Koelz 14017. Kabul: Kabul, Griffith 887.

W PAKISTAN. Kurram: Shalizan, Aitchison 887. Quetta: Ziarat, Lace 4056. Chitral: Mastuj, Bowes Lyon 1100.

RANGE: Afghanistan, W Pakistan, C and SW Asia, Europe.

**18. *N. hindostana*** (Roth) Haines, Bot. Bihar and Orissa 744 (1922).

Syn.: *Glechoma hindostana* Roth, Nov. Sp. 259 (1821).

*Nepeta ruderale* [Buch. Ham. ex] Benth. in Wall., Pl. As. Rar. 1: 64 (1830).

*N. calamithoides* [Royle ex] Benth. in Hook., Bot. Misc. 3: 379 (1833).

Type not designated.

W PAKISTAN. Peshawar: Peshawar to Torkham, Khyber pass, 650–900 m, Lamond 1602, Rechinger 30323; Peshawar to Attock Bridge, Lamond 1634; Attock Bridge, Griffith. Quetta: Fort Sandeman, Harsukh 20621; Sinkach, Harsukh 20622.

RANGE: W Pakistan, C India.

The recent find of this species at the Khyber pass suggests that it also grows in Afghanistan. Although described as an annual species, *N. hindostana* is often quite woody at the base and may be longer lived.

**19. *N. brachyantha* Rech. f. & Edelb. in Biol. Skr. 8, 1: 26 (1954). Ic.: l.c. fig. II.**

TYPE. Afghanistan. Nuristan: Pashki, 2300 m, *Edelberg* 619 (holo—W, iso—C)

AFGHANISTAN. Nuristan: Gusalak, 1000 m, *Edelberg* 1569. Kabul: Bagrami, Nedjerau-Tal, *Neubauer* 1951: 271.

W PAKISTAN. Chitral: Shóghot, N of Chitral, 1820 m, *Stainton* 2749; Birir, 2560 m, *Bowes Lyon* 692; Shishi valley, 1820 m, *Bowes Lyon* 619; Shunkur, 1520 m, *Siddiqui & Rahman*.

RANGE: NE and E Afghanistan, Chitral.

There is little to add to the original description and discussion of this species as a result of the recent collections but in Chitral the plants often are woodier, more compact in habit and with smaller leaves than in the type gathering.

**20. *N. rugosa* Benth. in DC., Prodr. 12: 384 (1848) exclud. pl. *Felix Arab.* Ic.: Biol. Skr. 8, 1: fig. 13 (1954)—(*sub N. cinereo-violacea*).**

Syn.: *N. cinereo-violacea* Rech. f. & Koeie in Biol. Skr. 8, 1: 28 (1954).

*N. lavandulacea* Rech. f. & Koeie, l.c. 36 non Linn. f.

*N. farakulumensis* Murata in Acta Phytotax. Geobot. 17: 74 (1958) as nom. nov.

TYPE. Afghanistan: Younutt and Erak, *Griffith* (holo—K).

AFGHANISTAN. Paktia: Jaji, between Ali Khel and Dre Khalla, 2850 m, *Lamond* 2506; Drekalla (Dre Khalla), *Aitchison* 841; Ahmad Khel, 2200 m, *Lamond* 2476. Gardez; inter jugum Altimur et Gardez, 2500 m, *Rechinger* 32034. Ghazni: in faucibus Say Khoshkak (Nawar Kotal) inter Okak et Behzud, 3150 m, *Rechinger* 17826; Okak, NE Dasht-e Nawar, 3000 m, *Rechinger* 17684. Ghorat: Dolaini, Darreh Garmak inter Qala Chahrak (Sharak) et Naourak, 2540 m, *Rechinger* 18896; in jugis inter Lal et Daulat Yar, 2800 m, *Rechinger* 18821. Bamian: between Shahtu pass and Panjao, 3000 m, *Hedge & Wendelbo* W. 4875; in monte Kuh-e Djoschah, NW Panjao, 2900 m, *Rechinger* 18759; Shibar pass, 2500 m, *Koeie* 2797.

W PAKISTAN. Kurram: Shalizan, *Aitchison* 625, 667.

RANGE: Afghanistan, W Pakistan.

Study of the now fairly abundant herbarium material led me to the conclusion that the two species described by Rechinger and Koeie (*N. cinereo-violacea* and *N. lavandulacea*) could neither be separated from each other nor distinguished from *N. rugosa*. There is a great range of continuous variation in leaf shape, calyx size, degree of density of the inflorescence and corolla length. Male sterile sex-forms occur quite frequently and often these specimens have few-flowered verticils, smaller calyces and corollas and are white-flowered

(e.g. Lamond 2476). Frequently in this species the calyces are strongly coloured violet and the facies of the plant, particularly the inflorescence, is not dissimilar to some *Lavandula* species.

**21. *N. suavis*** Stapf in Kew Bull. 1896: 19 (1896). Ic.: Ann. Bot. Gard. Calc. 9: t. 78 (sub. *Afridia nepetiformis*).

Syn.: *Afridia nepetiformis* Duthie in Ann. Bot. Gard. Calc. 9: 64 (1901).

TYPE. Afghanistan, *Griffith*. W Pakistan: Kurram; Kurram valley, Kaiwas and Shalizan, Aitchison 643 (holo—K).

AFGHANISTAN. Ghazni, *Griffith* 623. Kabul: Paghman mts., Sanlakh mt., Thesiger 194.

RANGE: Afghanistan, W Pakistan.

Although differing from all species in the genus in the character of the undeveloped or scarcely developed calyx teeth, *N. suavis* is, in all other respects, a typical member of the genus. Its closest ally is *N. rugosa* Benth.

**22. *N. griffithii* Hedge sp. nov. (Plate 3)**

*Affinis N. distante* Benth. et *N. ciliare* Benth. sed calycibus corollisque maioribus, foliis discoloribus, bracteis minoribus angustioribus differt.

*Perennis*, basi lignescens. *Caulis* 30–50 cm altus, ascendens, obtuse quadrangularis, internodiis mediis 6–7 cm longis, valde ramosus, pilis brevibus retrorsis tectus. *Folia media* 2·5–3·5 × 2·5–3 cm, late ovate, apice acuta, basi truncata vel cordata, plerumque prope basin latissima, margine regulariter serrata vel crenata, nervis subtus prominentibus supra inconspicuis, subtus appresse albido-lanata supra atroviridia pilis paucis brevibus laxe arachnoideo-tomentosa; petiolus 12–16 mm longus. *Folia superiora* sensim decrescentia, brevius petiolata vel sessilia. *Cymae multiflorae*, infimae ± remotae, superioriae confertae. *Bracteae* c. 2·5 mm longae, anguste lineares vel subulatae, pilis longis eglandulosis et glandulis sessilibus obsitae. *Flores* brevissime pedicellati. *Calyx* 7–8 mm longus, anguste tubulosus, curvatus, ore obliquus, pilis longis eglandulosis et glandulis sessilibus, fauce intus pilis paucis eglandulosis provisus; circa ad quartem partem in dentes linearis-triangulares acutos inaequales fissus. *Corolla* lilacina, c. 12 mm longa extra albo-puberula, e calyce valde exserta; labium superius rectus 1·5 mm emarginatum; labium inferius c. 3·5 mm longus deflexum lobo mediano rotundato-reniformi. *Stamina* quam labium superius longiora, exserta. *Stylus* bifidus subexsertus vel inclusus. *Nuculae* brunneae, tuberculatae (fig. 2, 22). *Floret* Jun.

AFGHANISTAN. Nuristan: Pushut, *Griffith* 65.

W PAKISTAN. Swat: between Malakand and Barikot, near Thana, 700 m, Lamond 1659 (holo—E); ibid, Rechinger 30467; Kalangai, Weatherhead 11. Malakand Agency: N of Malakand, Burtt 1505; S of Malakand towards Dargai, Rechinger 30875. Chitral: Chitral, 1900 m, Schmid 2405.

RANGE: E Afghanistan, W Pakistan.

The allies of the new species are the Kashmir and Nepalese *N. distans* Benth.



PLATE 3. Type specimen of *Nepeta griffithii* Hedge. Inset: dissections of calyx and corolla.

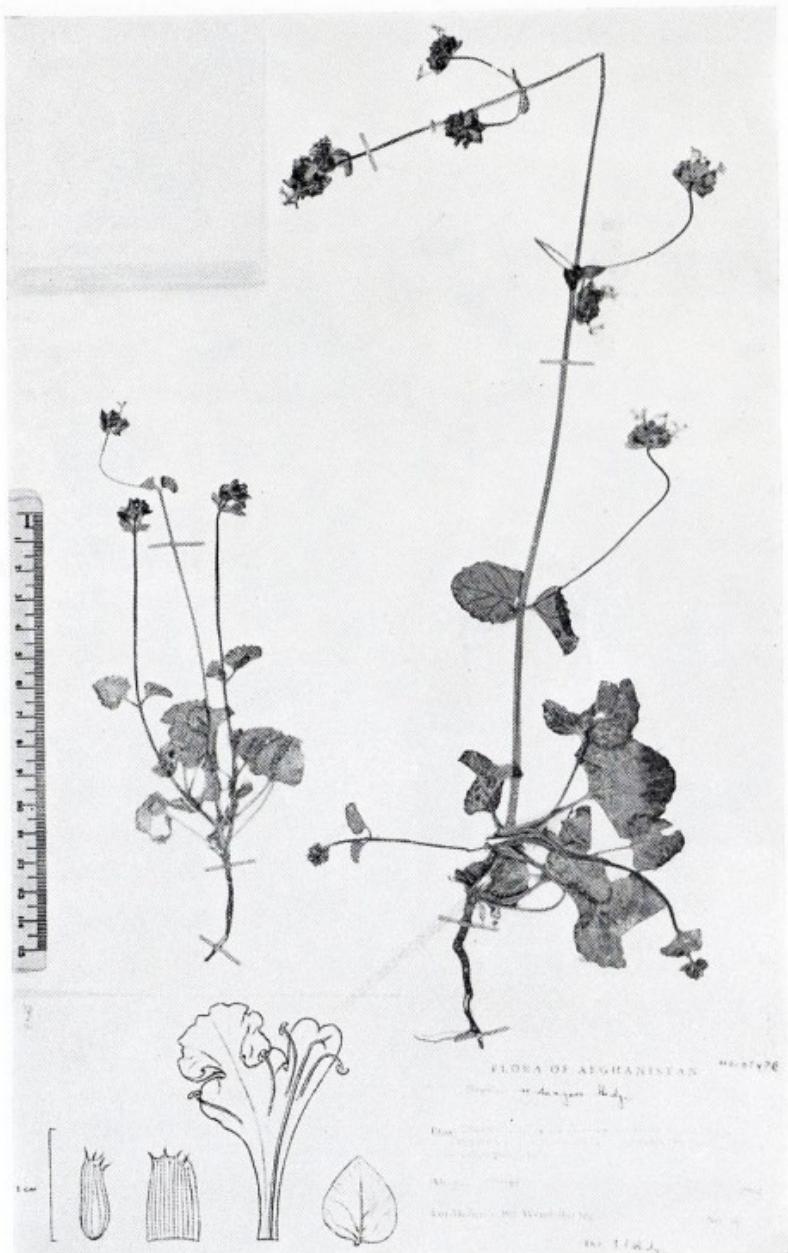


PLATE 4. Type specimen of *Nepeta rechingeri* Hedge. Inset: dissections of calyx corolla and bract.

and *N. ciliaris* Benth. All three share the characters of a tubular curved calyx tube with unequal teeth and corollas about twice the length of the calyx; in general facies, too, they are quite similar. *N. griffithii* differs in the longer calyces and corollas, the markedly discolored leaves and the much shorter and narrower bracts.

The cited gatherings of *N. griffithii* vary in corolla length, the density of the inflorescence and in leaf size.

**23. *N. pinetorum*** Aitch. & Hemsl. in Journ. Linn. Soc. 19: 183 (1882). Ic.: Biol. Skr. 8, 1: fig. 17 (1954) (— sub. *N. honigbergeri* Rech. f.).

Syn.: *N. cabulica* Rech. f. in Ann. Nathist. Hofmus. Wien 51: 421 (1940).  
*N. honigbergeri* Rech. f., l.c. 420.

TYPE. Afghanistan/Pakistan. Kurram: Pewar-Kotal to Karatigak, *Aitchison* 447 (holo—K, iso—E, C).

AFGHANISTAN. Kabul: Paghman, *Rechinger* 17098; Tang-i-Gharu, 1500 m, *Hedge & Wendelbo* W. 2802, *Hay* 74; Kabul to Gardez, Altumur pass (Kotal Tera) 2800 m, *Lamond* 2410. Parvan: Panjshir valley, 2 km above Gulbahar, 1700 m, *Hedge & Wendelbo* W. 2969; Salang pass, S side, 1850 m, *Lamond* 2060; Salang pass N side, 2000 m, *Rechinger* 31713. Paktia: inter Qasim Khel et Dobandi, 3300 m, *Rechinger* 32362. Nuristan: Vama, *Edelberg* 963.

W PAKISTAN. Chitral: Chitral, *Harriss* 16506; Rumbour, 2130 m, *Bowes Lyon* 652; Shishi Gol, E of Drosh, 1820 m, *Stainton* 2371; Turikho river, 2130 m, *Stainton* 2510; Markandi, 1670 m, *Harriss* 16502; Tirich Mir, Zapotili, 3500 m, *Wendelbo*.

RANGE: Afghanistan, W Pakistan.

A common species within its fairly limited range, *N. pinetorum* exhibits great variation in several features. For example, the calyx length varies between 7 and 13 mm, the calyx teeth vary from obtuse to acute, and the inflorescence ranges between compact, many-flowered and lax, few-flowered. The variation in all these features is continuous without any clear relation to distribution.

It is of interest that *N. fissa* C.A.M., a Turkish-Persian species in the same general alliance as *N. pinetorum*, but quite distinct from it, shows a comparable degree of variation in the same characters as those mentioned above. The variation in *N. fissa* has been discussed in a previous paper (*Hedge* in Notes R.B.G. Edinb. 24: 51–71, 1962).

*N. pinetorum*, originally described from a gathering made at the edge of pine-forests, grows in a variety of habitats; it is equally tolerant of altitude, growing between 1100 and 3500 m.

**24. *N. bellevii*** Prain in Journ. As. Soc. Bengal 60, 2: 204 (1891). Ic.: l.c. t. 3.

TYPE. Afghanistan. Kandahar to Kelat-i-Ghilzai, *Bellew* (CAL—n.v.).

AFGHANISTAN. S side Kuh-i Baba, Sirkjui, 2450 m, *Thesiger* 128. Orozgan: Kouh-Garm Ab, *Lindberg* 968.

RANGE: Afghanistan.

The two recent collections are apparently the first re-gatherings of this distinct species since the original collection. With a considerable superficial resemblance to the Spanish endemic *N. tuberosa* L., *N. bellevii* has lower leaves up to 7–9 × 3–4 cm, c. 12 cm long loose spikes, membranous ovate bracts longer than the calyces and c. 11 mm corollas. The most diagnostic single feature is the remarkable horse-shoe shaped areole of the nutlets (fig. 2, 24). Although none of the field notes gives the flower colour, it appears from the dried flowers on the Thesiger specimen that the corolla tube and upper lip are yellow or cream and the labellum is purple-violet.

On the basis of all these features, *N. bellevii* has no close connection with any SW or C Asiatic species of *Nepeta* and should be considered as a most interesting relict species.

**25. *N. juncea* Benth. in DC., Prodr. 12: 379 (1848).**

TYPE. Afghanistan, Griffith (holo—K).

AFGHANISTAN. Kabul: Tang-i-Gharu, 1750 m, Hedge & Wendelbo W. 2766; Kabul, Koelz 13486; Kabul to Lataband, 1900 m, Lamond 1948; Sheikabad inter Kabul et Ghazni, 2300 m, Rechinger 17250. Ghazni: NW Ghazni, Qala Nau, 2300 m, Rechinger 17811; Bozghalak, prope Shashgao, 24 km NE Ghazni, 2400 m, Rechinger 17299.

W PAKISTAN. Quetta: inter Sanjawi et Harnai, 900 m, Rechinger 29461; Urak Tal, Rep, Nasir 28399, Lace 4037; between Dulai and Kanak, Chiltan, 1600 m, Lamond 1094; inter Kingri et Mekhtar, 1500 m, Rechinger 29765, Lamond 1407. Waziristan: Barwand, Duthie 15642.

RANGE: Afghanistan, W Pakistan.

This is a most variable species whose exact limits are uncertain. Although most of the fairly abundant material gathered in the province of Kabul is uniform, material from Ghazni and Quetta often varies considerably in several respects. For example, the length and shape of the bracts is most variable and often gives the impression that separate taxa could be recognised. However, until intensive study has been made which might show the presence of distinctive local races, it is preferable to recognise only one very variable species.

Male sterile sex forms are apparently frequent in this complex and often have a different facies from the hermaphrodite plants, e.g. the verticils are fewer-flowered and the bracts are shorter and narrower. Flower colour is usually white but ranges between white and lavender.

The species closely allied to *N. juncea* are *N. glomerulosa* Boiss. in Persia, *N. gedrosiaca* Bornm. from Persian Balucistan, *N. xylorhiza* Rech. f. and *N. heterotricha* Rech. f. from Afghanistan. Further studies of a wider scope might show that subspecific status is preferable for them.

**26. *N. xylorhiza* Rech. f. in Biol. Skr. 8, 1: 41 (1954) exclud. pl. cabul. Ic.: I.c. fig. 23.**

TYPE. Afghanistan. NW: Burchao pass, 2750 m, Koelz 14125 (W, E, BPI—n.v.).

AFGHANISTAN. Ghorat: Mollah Allah, 12 km SW Taiwara, 2300 m, Rechinger 18980; Kuh-Tscheling-Safed-Daraq, 2800 m, Rechinger 19101.

RANGE: Afghanistan.

This species is probably only a local form of *N. juncea* Benth.; the differences between them are no more than given in the specific key. More gatherings from NW and C Afghanistan are needed.

*Koelz* 13486, cited by Rechinger in the original description of *N. xylorhiza*, is *N. juncea* Benth.

**27. *N. prainii* Duthie in Ann. Bot. Gard. Calc. 9: 63 (1906). Ic.: l.c. t. 77.**

TYPE. W Pakistan. Kurram: Kurram valley, *Harsukh* 15432 (CAL—n.v.). Samana range, NE of Thal, *E. C. Hare* (CAL—n.v.).

AFGHANISTAN. Nuristan: Khash district, *Koelz* 12916; Pashki, 2600 m, *Edelberg* 1316.

W PAKISTAN. Chitral: Golen Gol, *Bowes Lyon* 7; Lutkor river, Shoghot, *Stainton* 2593. Kurram: Kurram valley, *Harsukh* 15433.

RANGE: E Afghanistan, W Pakistan.

It is doubtful if *N. mollis* Benth. and *N. distans* Benth. described from the Kashmir region, can be specifically separated from *N. prainii*. More material of the W Himalayan species is needed before a conclusion can be reached. Both, in addition to *N. prainii*, have been recorded from the Kurram valley (and Swat) but in the meantime I prefer to regard these as misidentifications for *N. prainii*.

The relationship of *N. prainii* with *N. juncea* is apparently fairly close but with the material examined they appear quite distinct species.

**28. *N. heterotricha* Rech. f. in Biol. Skr. 8, 1: 32 (1954). Ic.: l.c. fig. 16.**

TYPE. Afghanistan. Mazar-i-Sharif: Polat, 2740 m, *Koelz* 13945 (W, E, BPI—n.v.).

AFGHANISTAN. Mazar-i-Sharif: Aq Kupruk, 750 m, *Hedge & Wendelbo* W. 3932; Koh-i-Elburz, Chesma-i-Shafa, 900 m, *Hedge & Wendelbo* W. 3857; inter Aq Kupruk et Chesma-i-Shafa, *Rechinger* 16264. Parvan: Ghorband valley, 2600 m, *Podlech* 12060.

RANGE: N Afghanistan.

Only known from a few gatherings mostly from the Koh-i-Elburz region, *N. heterotricha* is closely related to *N. juncea* Benth. which is only known from the S side of the Hindu Kush. The northern species differs in the smaller leaves, the almost leafless flowering stems, the fewer flowered verticils and the shorter bracts.

**29. *N. persica* Boiss., Diagn. 1, 12: 66 (1853).**

Several syntypes from S and N Persia (G—n.v.).

AFGHANISTAN. Herat: Herat, 1400 m, *Koeie* 2272; Langer Khil, *Lindberg*

985. Ghazni: in jugo Kotal-e Ketschru, NW Sang-i Masha, 2880 m, *Rechinger* 17526. Ghorat: Parjuman, 1850 m, *Rechinger* 19036.

RANGE: Afghanistan, Iran.

A rock crevice species, closely allied to the Persian *N. kotschyi* and the Sinai-Egyptian *N. septemcrenata*. The cordate, ovate-orbicular leaves and subequal erect calyx teeth are diagnostic features for the species group.

**30. *N. micrantha*** Bge. in Ledeb., Fl. Alt. 2: 401 (1830). Ic.: Ledeb., Ic. Pl. Fl. Ross. 5: t. 412 (1834).

TYPE. Altai, in montibus Arkaul et Dolenkara, *C. A. Meyer* (LE—n.v.).

AFGHANISTAN. Herat: Badghis, *Aitchison* 467, 1095; Obeh, *Lindberg* 1962: 471.

W PAKISTAN. Baluchistan, *Stocks* 1023 (n.v.).

RANGE: Afghanistan, W Pakistan, SW & C Asia.

There are several species very closely related to *N. micrantha* such as *N. meyeri* Benth., *N. pallida* C. Koch and *N. saccharata* Bge. Although they are all treated as separate species in Komarov Fl. URSS, study of their variation throughout their respective ranges is needed to determine their status. The determination of the Afghanistan and W Pakistan plants as *N. micrantha* is therefore provisional.

**31. *N. sewerzowii*** Rgl. in Acta Hort. Petrop. 6: 360 (1879). Ic.: Trans. Linn. Soc. 2nd ser., 3, 1: t. 41 (1888); Komarov, Fl. URSS 20: t. 14, fig. 1 (1954).

Syn.: *Drepanocaryum sewerzowii* (Rgl.) Pojark. in Komarov, Fl. URSS 20: 228 (1954).

TYPE. Turkestan "in montibus karatavicis Mogol-tau, *Sewerzow* (LE—n.v.); in Kokaniae valle fluvii Sarawschan prope Daschi-kasi et prope Katti-kurgan, *O. Fedtschenko*" (LE—n.v.).

AFGHANISTAN. Herat: Badghis, *Aitchison* 373. Maymana: Darrah Zang near Belceragh, 1400 m, *Hedge & Wendelbo* W. 3755. Farah: Jija, 900 m, *Koeie* 4058. Mazar-i-Sharif: Aq Kupruk, 750 m, *Hedge & Wendelbo* W. 3941. Bamian: 16 km S Doab, *Rechinger* 16641. Kabul: Kabul, Sher Darwasa, 1800 m, *Hedge & Wendelbo* W. 2905. Ghazni: 40 miles N Ghazni, *Furse* 5694. Badakshan: Faizabad, *Furse* 6232.

W PAKISTAN. Chitral: Drosh, *Stainton* 2270, *Toppin* 149; Mastuj, *Stainton* 2459. Baluchistan, *Stocks*.

RANGE: Afghanistan, W Pakistan, Soviet C Asia.

Pojarkova (l.c.) created a new monotypic genus, *Drepanocaryum*, and a new monotypic subfamily, *Drepanocaryoideae*, to accommodate this species. Her reasons for removing it from *Nepeta* were the 19–20-nerved calyx, the obliquely inflated base of the calyx and the falcate nutlets (fig. 2, 31). Despite these not insubstantial reasons for generic separation, I prefer, because of the many features it has in common with other annuals such as *N. saccharata* Bge. and *N. micrantha* Bge., to leave it in *Nepeta*.

*N. sewerzowii* is a common plant in Afghanistan, most frequently found growing under, or at the base of, rocks. It varies greatly in size according to habitat.

### 32. *N. rechingeri* Hedge, sp. nov. (Plate 4).

Species insignis nulli affinis.

Sect. *Micranthae* Boiss.—*Annua*, 10–35 cm alta, simplex vel saepius prope basin ramis arcuatis provisa. *Caules* erecti, quadrangulares, pauci-foliati, glanduloso-tomentosi. *Folia* basalia minuta, petiolata, obovata, subintegra, florendi tempore plerumque jam emarcida. *Folia* caulina 2–3-paria, petiolata, lamina 10–30 mm longa et lata, ovata, basi truncata vel subcordata, obtuse crenata vel subintegra, indumento utrinque pilis eglandulosis et pilis glandulosis brevioribus; nervatura indistincta. *Axis* inflorescentiae simplex vel ramosus, pilis glandulosis et eglandulosis provisus, viscosus. *Inflorescentia* sphaericocapitata, longissime pedunculata, densa et multiflora, 10–15 mm diametro. *Bracteae* late ovatae calyces superantes, virides vel purpureae. *Calyx* 5 mm, tubulosus, ore paulum obliquus, pilis eglandulosis et glandulosis brevioribus capitatis obsitus, intus glaber, dentibus superioribus 1 mm, linearibus acutis, inferioribus 1·5 mm linearibus. *Corolla* ad 11 mm, lilacina, extra albo-puberula, curvata e calyce valde exserta; labium superius in lobos duos fissum; labium inferius lobo mediano rotundato-reniformi, c. 4·5 mm lato, lobis lateralibus ovatis obtusissimis. *Stamina* quam labium superius breviora vel subexserta. *Style* bifidus, inclusus. *Nuculae* (fig. 2, 32) oblongae. *Floret* Mai-Jun.

AFGHANISTAN. Bamian: c. 15 km W of Doab in Ajar valley, *Chenopod.-Peganum* soil, 1450 m, 21 v 1962, Hedge & Wendelbo W. 3444 (holo—E, iso—BG); Ajar valley, dry barren soil slopes, Hedge & Wendelbo W. 4127; Darrah Siakar, 2000 m, Hedge & Wendelbo W. 4152; in valle Ajar, Rechinger 16636; im Kamardtal westlich von Doab, Gilli 3549.

RANGE: Afghanistan.

The characteristic features of this new species are the long pedunculate, densely capitate inflorescences, the broad ovate bracts, the small calyces and large corollas, the glandular indumentum and the annual habit. This combination of characters gives it an isolated position in the genus. Although it has been placed in sect. *Micranthae* on account of its annual habit and the calyx form, there is no obvious close ally for it among the SW Asiatic species. Likewise, among the perennial species, the new species has no obvious kinship although similar in habit and branching to the otherwise unrelated *N. floccosa*.

It is a pleasure to name this distinct species after Prof. K. H. Rechinger of Vienna.

### 33. *N. pungens* (Bge.) Benth., Lab. Gen. et Sp. 487 (1834).

Syn.: *Ziziphora pungens* Bge. in Ledeb., Fl. Alt. 1: 23 (1829).

TYPE. Altai, Bunge, ann. 1833.

AFGHANISTAN. Herat: Badghis, Aitchison 472.

RANGE: Afghanistan, Iran.

The stiff recurved bracts are the most diagnostic feature of this species. Although only known from one collection in Afghanistan, further investigations will probably show that it is scattered throughout at least the west and north-west of the country.

Pojarkova (Fl. URSS 20: 429-435, 1954) recognises, in addition to *N. pungens*, two segregates of this species viz. *N. microcephala* Pojark. and *N. fedtschenkoi* Pojark. She records both the latter two, but not *N. pungens*, from Afghanistan. No material has been seen of the two species of Pojarkova and consequently, despite the key in the Fl. URSS, their relationship with the cited specimen is uncertain.

### 34. *N. satureioides* Boiss., Diagn. I, 5: 24 (1844).

TYPE: Persia, prope Esfahan, Aucher 5147 (holo—G, iso—K).

AFGHANISTAN. Herat: N of Herat, Koeie 4057; Obeh, Lindberg 70; Harirud, Aitchison 413. Ghorat: inter Daulat Yar et Qala Qansi (Tschaktscharan), 2200 m, Rechinger 18830. Bamian: N of Paimuri gorge, 2600 m, Hedge & Wendelbo W. 4629; Koh-i-Baba near Bamian, 2610 m, Gilli 3548; Doab, Volk 2686. Kabul: Koh-i-Asamai, Lamond 2116. Nuristan: Keran to Sharan, 3300 m, Frey 160.

W PAKISTAN. Quetta: Urak, R. R. Stewart s.n.

RANGE: Afghanistan, W Pakistan, Soviet C Asia, Iran.

Without any close allies in the genus, *N. satureioides* can be recognised at a glance by the stiffly erect habit and the linear recurved leaves subtending the widely separated verticils.

### 35. *N. daenensis* Boiss., Diagn. I, 7: 53 (1846).

TYPE. Persia: Kuh Daena, Kotschy 915b (holo—G, iso—E, LE—n.v., K).

AFGHANISTAN. Paktia: Hariab valley, Collett 14. Ghazni: distr. Behzud (Diwal Kol), Dahan-e Abdila, 35 km E Sar-i Chashma, 2800 m, Rechinger 17994. Kabul: Unai, Kuh-i Qhalandaran, 3600 m, Hedge & Wendelbo W. 4503. Parvan: E side Shibar pass, 2600 m, Hedge & Wendelbo W. 3316. Bamian: Bulola to Shibar, 2700 m, Rechinger 16807; Band-i Amir, Rechinger 18221b. Badakshan: Wakhan, Quazi-Deh, 2950 m, Roemer 118.

W PAKISTAN. Chitral: Serin, Bowes Lyon 790.

RANGE: Afghanistan, W Pakistan, Pamir-Alai, Iran.

*N. daenensis* is allied to *N. bracteata* but can be distinguished by the narrower, oblong-linear leaves and the linear-lanceolate bracts. As is the case in *N. bracteata* there is great variation in the leaf shape and in some usually dwarf specimens the leaves are linear and entire. The flower colour varies between whitish and deep violet; often the whole plant is suffused with purple.

### 36. *N. bracteata* Benth. in DC., Prodr. 12: 395 (1848). Ic.: Komarov, Fl. URSS 20: t. 25, fig. 2 (1954).

Syn.: *Zataria ? humilis* Benth. in DC., Prodr. 12: 183 (1848).

TYPE. Persia, Isfahan, *Aucher* 5136 (G, K).

AFGHANISTAN. Herat: Chisht, 1700 m, *Koeie* 3676; Jija, 900 m, *Koeie* 4060. Ghazni: in jugo Sardalu W Qarabagh, 2400 m, *Rechinger* 17320. Kandahar/ Ghazni: between Kandahar and Ghazni, 1400 m, *Furse* 5608. Kabul: Koh-i Asamai, *Lamond* 2115; Paghman, *Rechinger* 17138. Paktia: in jugo Shutargarden (Latakor), 3300 m, *Rechinger* 32353. Bamian: inter Bamian et Band-i Amir, *Rechinger* 18123; between Kotal-e-Sevali and Kotal-e-Shahtu, 3000 m, *Hedge & Wendelbo* W. 4861; Doab, 1440 m, *Hedge & Wendelbo* W. 3374. Parvan: Panjshir valley, Mukeni, 2400 m, *Hedge & Wendelbo* W. 5303a.

W PAKISTAN. Quetta: Quetta to Chaman, Khojak pass above Shelabagh, *Lamond* 1069; Shelabagh, *Lace* 3331; Quetta, *Dick Peddie* 228; Maslakh range, Sultan, *R. R. Stewart* 28038.

RANGE: Afghanistan, W Pakistan, Pamir-Alai, Iran.

A very common species in Afghanistan, *N. bracteata* varies greatly in several characters. The corollas may be yellowish-white, white with a lilac hood or bluish violet; the indumentum may be sparse or dense adpressed; the leaf margins may be entire or coarsely toothed. The relative abundance of herbarium material shows intergradation among the variants and there are no apparent reasons for subdividing the species although it does show a tendency to form almost distinguishable local populations. For example, the plants from the Ajar valley, west of Doab, are fairly uniform in indumentum, the entire leaf margins and the yellowish flowers.

The Persian species *N. globifera* Bge. is very closely related to *N. bracteata* and doubtfully different from it.

### 37. *N. raphanorhiza* Benth., Lab. Gen. et Sp. 734 (1835).

TYPE. Kashmir: Baramulla to Setoune, Jhelum valley, 7 Mai, *Jacquemont* 351 (K).

AFGHANISTAN. Paktia: Khost, Gabr valley S of Chakmani, *Neubauer* s.n. Nuristan: Daulatash, *Koelz* 11652; Vama, *Edelberg* 362; in *Cedrus deodora* wood, 2100 m, *Gilli* 3521.

W PAKISTAN. Swat: Jabba valley, E of Kolaila, 2000 m, *Lamond* 1770. Chitral: Ziarat, Lowarai pass, 2450 m, *Stainton* 2557. Kurram: Peiwar Kotal, *Harsukh* 14833; Badishkhel to Alikhel, *Aitchison* 55, 588.

RANGE: E Afghanistan, W Pakistan, Kashmir.

Although generally characterised by the thick tuberous rootstock (up to 15 mm in diameter), specimens without roots can usually be recognised on the characters of the small leaves, the compact inflorescence heads and the clearly exserted corolla tubes. In the type and density of the indumentum and in the size of the leaves, *N. raphanorhiza* is most variable.

### 38. *N. spathulifera* Benth. in DC., Prodr. 12: 380 (1848). Ic.: Bot. Tidsskr. 28: fig. 3 (1908) (sub. *N. fallax* Briq.).

Syn.: *N. reniformis* Briq. in Bot. Tidsskr. 28: 236 (1908).

*N. fallax* Briq., l.c. 237.

TYPE. Afghanistan, without exact locality, *Griffith* (holo—K).

AFGHANISTAN. Ghazni: Okak, NE altoplanitie Dasht-e Nawar (Naour), 3000 m, *Rechinger* 17694. Kabul: Paghman, *Neubauer* 4651; E of Augardan pass between Panjao and Bisut, 3150 m, *Hedge & Wendelbo* W. 5011. Parvan: Ghorband, 2250 m, *Neubauer* 4160. Bamian: W side of Shibar pass, 2400 m, *Hedge & Wendelbo* W. 4191; Band-e-Amir, 2900 m, *Hedge & Wendelbo* W. 4770. Badakshan: Panjshir valley, Auz Anjuman, 3400 m, *Hedge & Wendelbo* W. 5465; Wakhan, Mt. Noshaq, *Yosii* 658, 680 (n.v.); Zebak, *Giles* 184.

RANGE: Afghanistan, Pamir-Alai.

*N. spathulifera* is a distinct annual recognised by the petiolate floral leaves and the reniform basal leaves; it is a fairly uniform species but varies in the density of the indumentum on leaves and inflorescences. In Afghanistan it grows up to 3400 m; in Flora URSS, its uppermost limit in the Pamir-Alai is given as 3800 m.

Although the type specimen is quite adequate, it is not possible to be sure where Griffith collected it. One of the labels on the type sheet bears the name Akrobat (near Bamian) and this could be the type locality although Griffith's Journal makes no mention of his having collected a *Nepeta* there.

**39. *N. eriosphaera* Rech. f. & Koeie in Biol. Skr. 8, 1: 31 (1954). Ic.: l.c. fig. 14b, 15.**

TYPE. Afghanistan. Farah: Jija, 900 m, *Koeie* 3599 (holo—W, iso—C).

AFGHANISTAN. Herat/Farah: Shin Dand to Farah, 1300 m, *Furse* 5514. Kandahar: Pirzada, *Koeie* 3599; Tirine, *Lindberg* 814.

W PAKISTAN. Baluchistan: Saffar, *Uddin* 100; Gulungoor, *Stocks* 987.

RANGE: W and SW Afghanistan, W Pakistan.

Characterised by the long white indumentum on the verticils and the long slender calyx teeth, *N. eriosphaera* is related to the Persian *N. eremophila* Hausskn. & Bornm. and the Afghan *N. spathulifera*.

**40. *N. korshinskyi* Lipsky in Acta Hort. Petrop. 23: 222 (1904). Ic.: Komarov, Fl. URSS 20: t. 28, fig. 1 (1954).**

Syn.: *Kudrjaschevia korshinskyi* (Lipsky) Pojark. in Not. Syst. Leningrad 15: 276 (1953).

TYPE. Turkestan, Darwas, *Korshinsky* and Shugnan, *Alexeenko* (LE—n.v.).

AFGHANISTAN. Badakshan: W Wakhan, Urghend valley, 3900–4200 m, *Roemer* 236.

RANGE: NE Afghanistan, Pamir-Alai.

This species is recognised by the few-flowered verticils, the 2-staminate corollas and the rigid, serrate leaves with prominent lateral veins. It is very closely allied to *Kudrjaschevia allotricha* Pojark. (l.c. 277). Kitamura records the latter species from Wakhan (Additional Reports, Kyoto 133: 1966) and this may well refer to the plant that I have named *N. korshinskyi*. Pojarkova on the

character of the 2-staminate corollas put these two species into the genus *Kudrjaschevia* and in a supplement to her paper (Not. Syst. 15: 281, 1953) added in two annuals *K. jacubi* (Lipsky) Pojark. and *K. nadinae* (Lipsky) Pojark.

SPECIES WRONGLY RECORDED FROM OUR AREA OR  
DOUBTFULLY PRESENT

**A. N. lagopsis** Benth. in DC., Prodr. 12: 397 (1848).

TYPE. W Pakistan: Beebeeanee, *Griffith* 212 (holo—K).

This species is characterised by the woody base, the procumbent-ascending habit, the short petiolate, ovate leaves and the capitate, lanate inflorescence with bracts exceeding the calyx. Although Bentham gave the type locality as 'in regno Cabulico' and Boissier (Fl. Orient. 4: 640, 1879) did likewise, this is an error of geography. Beebeeanee (Bibi Nani) is in W Pakistan between Dadhar and Mach, S of the Bolan pass.

**B. N. ciliaris** Benth. in Wall., Pl. As. Rar. 1: 64 (1830).

TYPE. Nepal, *Wallich* 2082.

The record of this species from Afghanistan was based on a Griffith gathering from Nuristan (Rechinger in Biol. Skr. 8, 1: 28, 1954). This specimen is included under the new species *N. griffithii* Hedge (see page 114).

**C. N. graciliflora** Benth. in Wall., Pl. As. Rar. 1: 65 (1830).

TYPE. Nepal, Hurdwar, *Wallich* 2123.

There is a specimen at the Naturhistorisches Museum, Vienna which may be referable to this species. It is a cultivated specimen grown apparently from seed collected in Chitral (Yarkhum, Kerstan). The record requires confirmation as the known range of *N. graciliflora* is considerably to the east of Chitral.

**OCIMUM L.**, Sp. Plant. 597 (1753); Gen. Plant. ed. 5: 259 (1754).

**1. O. basilicum** L., Sp. Plant. 597 (1753).

TYPE. 'Hab. in India'.

AFGHANISTAN. Badakshan: Jurm, 2133 m, *Koelz* 12912.

RANGE: Afghanistan, India, Malaysia, China, Formosa.

A commonly cultivated plant in much of the subtropical regions of the world. Its exact wild distribution is therefore uncertain.

**ORIGANUM L.**, Sp. Plant. 588 (1753); Gen. Plant. ed. 5: 256 (1754).

**1. O. vulgare** L., Sp. Plant. 590 (1753).

- a. Cymes dense, ± capitate; bracts 4–7 mm, broad ovate to obovate, ± obtuse . . . . . var. *vulgare*
- + Cymes ± lax, often elongate; bracts 1·5–5 mm, lanceolate to ovate, acute . . . . . var. *glaucum* (Rech. f. & Edelb.) Hedge & Lamond
- var. *vulgare*

TYPE. "Hab. in Europae, Canadae rupestribus" (LINN.—photo!).

W PAKISTAN. Swat: Kalam, c. 2200 m, Rechinger 19465; Ushu c. 2400 m, Rechinger 19484.

RANGE: Temperate regions of the northern hemisphere.

var. *glaucum* (Rech. f. & Edelb.) Hedge & Lamond **comb. et stat. nov.** Ic.: Biol. Skr. 8, 1: fig. 46, (1954) (sub. *O. glaucum*).

Syn.: *O. glaucum* Rech. f. & Edelb. in Biol. Skr. 8, 1: 76 (1954).

*O. glaucum* var. *laxius* Rech. f. & Edelb. l.c.

TYPE. Afghanistan. Nuristan: Chetras, 2000 m, Edelberg 1198 (W, C—n.v.).

AFGHANISTAN. Badakshan: Faizabad, Neubauer, 1900 m, Edelberg 1393; Khash district, 2450 m, Koelz 12926. Qataghan: Salang Pass (N), 3000 m, Neubauer 5004, Rechinger 31629; Andarab-Tal, Darrah-i-Kasan, NE of Deh Salah, 2200 m, Podlech 11692; Khost-o-Fereng, 2100 m, Podlech 11881. Parvan: Salang Pass (S), Neubauer 4404, 2000 m, Lamond 2065, Rechinger 31325. Nangarhar: Darim, 1900–2400 m, Neubauer 988.

W PAKISTAN. Chitral: Madalasht, NE of Drosht, 2450 m, Stainton 3148, 2750 m, Bowes Lyon 150. Swat: Weatherhead 44. Malakand: Malakand, 800 m, Rechinger 30454, Lamond 1654.

RANGE: NE Afghanistan, NW Pakistan.

Study of *O. vulgare* in Europe, SW Asia, C Asia and the Himalayas to China showed that several distinct infraspecific taxa are recognisable within this range. For example, subsp. *prismaticum* Gaud. from Europe has been separated on the elongated inflorescence and Boissier's var. *viride*, from Greece eastwards to Persia and Transcaspia, on smaller bracts. A detailed study is needed to clarify the relationship between these two taxa, var. *glaucum* from our area and plants from the remainder of the species range. Also within the complex lie *O. tyttanthum* Gontsch. (Delect. Sem. Inst. Bot. Sect. Tadzhik. Acad. Sc. URSS: 12, 1924) from the Tian Shan–Pamir–Alai region and its close relative *O. kopetdagensis* Boriss. (Not. Syst. Leningrad 16: 280, 1954). Both were also separated from *O. vulgare* on details of inflorescence, bracts and corolla size but more material is needed to assess their status.

In the specimens examined, sex forms are frequent and account for differences in calyx and corolla size. Out of the twenty six specimens examined, nine were male sterile. One of them was the holotype of var. *laxius* (Edelberg 1393). Isotype material at Edinburgh however is hermaphrodite and several other gatherings exhibit both the sex form and hermaphrodite specimens (e.g. Neubauer 988, 4404 and Podlech 11881). Bowes Lyon 150 has male sterile and hermaphrodite flowers within the same inflorescence, a very unusual occurrence in the Labiateae.

The bracts in the Afghan specimens are ciliate on the margins but otherwise glabrous and ± equal the calyx; the Chitral plants have glabrous bracts, slightly exceeding the calyx, while those from Swat have usually sparsely pubescent bracts, either equalling or longer than the calyx. Flower colour may vary from white to mauve or rose.

## OTHER RECORDS

**O. majorana** L. is a commonly cultivated plant and is recorded as an alien in Swat. A Giles specimen has been seen from his Gilgit expedition.

**O. laxiflorum** Royle recorded in Biol. Skr. 8, 1: 76 (1954), (*Neubauer* 948) is a misidentification of *Zataria multiflora* Boiss.

## OTOSTEGIA Benth., Lab. Gen. et Sp. 601 (1834).

Lit.: 1939. S. N. Kudrjaschew, Frag. Monog. roda *Otostegia*. Tr. Bot. Sekt. Kom-Ta Nauk pri. SNK Uzbek SSR.

Study of the accompanying map shows that although *Otostegia* has not been recorded from Afghanistan its occurrence close to the border in the neighbouring countries suggests that future collecting will reveal its presence.

Species of section *Chartocalyx*, found in the Pamir-Alai-Tian Shan region may be expected in Wakhan and Upper Badakshan. *O. limbata* from NW Pakistan and *O. aucheri* stretching from SE Persia to the eastern limits of Baluchistan should be sought from the east and south of the country respectively. These two species are dealt with below.

- |   |                                      |
|---|--------------------------------------|
| 1. Leaf apex spiny; corolla white . . . . .     | 1. <i>O. aucheri</i> Boiss.          |
| + Leaf apex not spiny; corolla yellow . . . . . | 2. <i>O. limbata</i> (Benth.) Boiss. |

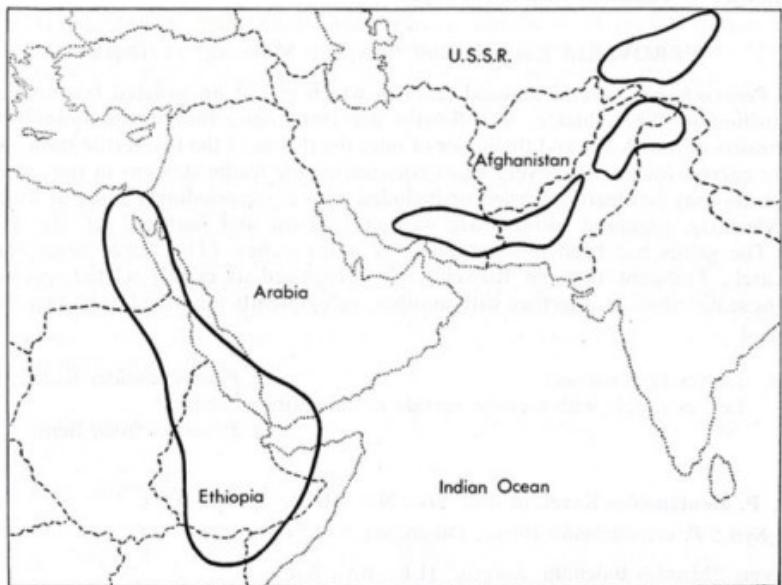


FIG. 3. Distribution of the genus *Otostegia* Benth. The main concentration of species is in the Egypt-Ethiopia region where c. 12 are recorded. Three are known from the S Iran-Baluchistan area and 1 from NW Pakistan. In the Pamir-Alai region the genus is represented by section *Chartocalyx* with 4 species.

**1. O. aucheri** Boiss., Diagn. ser. 1, 5: 40 (1844). Ic.: Jaub. and Spach, Ill. Fl. Or. t. 382 (1850-53).

TYPE. "Hab. in Persia australi" *Aucher* 5122 (G.—n.v.).

W PAKISTAN. Baluchistan. Makran: Hoshab to Panjgur, 600 m, *Rechinger* 28053, *Lamond* 539; Awaran to Hoshab, *Rechinger* 27685, *Lamond* 354. Kalat: Panjgur to Surab, 1350 m, *Rechinger* 28288; Khuzdar, *Stocks* 713, *Rechinger* 27407. Quetta: Anambar (Loralai to Mekhtar), *Lace* 3666; Duki to Gumbaz, 900-1000 m, *Rechinger* 29620, *Lamond* 1341.

RANGE: W Pakistan (Baluchistan), SE Iran.

**2. O. limbata** (Benth.) Boiss. in Fl. Orient 4: 778 (1879).

Syn.: *Ballota limbata* Benth., Lab. Gen. et Sp. 743 (1835).

TYPE. "Hab. in Indiae Orientalis septentrionalis montibus: in glareosis lapidosis editioribus juxta Pindaden Khan" 7 April, *Jacquemont* 97 (P.—n.v., K).

W PAKISTAN. Chitral: Jambatai, 1500-1800 m, *Harriss* 16523. Swat: Barikot to Mingora, 700-900 m, *Rechinger* 30483. Peshawar: Kund, between Peshawar and Attock, *Rechinger* 30383, *Lamond* 1635; Khyber hills, *Deane*. Kohat: Cherat, SE of Peshawar, 700-950 m, *Rechinger* 30258. Kurram: Thal to Parachinar, *Rechinger* 30882.

RANGE: W Pakistan, Kashmir, Punjab.

### PEROVSKIA Karel. in Bull. Soc. Nat. Mosc. 14: 15 (1841).

*Perovskia* has several unusual features which give it an isolated taxonomic position in the Labiate. The flowers are resupinate, the corolla lower lip consists of four lobes and the upper of one; the thecae of the two fertile stamens are narrow linear with a very short connective; the fertile stamens in the same species may be clearly exserted or included with correspondingly short or long styles; the stigmatic surfaces are unusually broad and flattened (cf. fig. 5).

The genus has been monographed by Kudrjaschew (The genus *Perovskia* Karel., Tashkent 1936, in Russian). He recognised six closely-related species whose distribution, together with another, subsequently described, is shown on fig. 4.

- |  |                                    |
|--|------------------------------------|
| 1. Leaves bipinnatisect . . . . .                                    | 1. <i>P. abrotanoides</i> Karel.   |
| + Leaves simple with crenate, serrate or subentire margins . . . . . | 2. <i>P. atriplicifolia</i> Benth. |

**1. P. abrotanoides** Karel. in Bull. Soc. Nat. Mosc. 14: 15 (1841).

Syn.: *P. artemisioides* Boiss., Diagn. ser. 2, 4: 15 (1859).

TYPE. "Montes Balchani, Karelina" (LE—n.v., K).

AFGHANISTAN. Bamian: 16 km S of Doab, *Rechinger* 16650; Surkhab valley S of Doab, *Podlech* 12602; 20 km S of Doab, 1500 m, *Hedge & Wendelbo* W. 4134. N: Binimang, *Koelz* 13883; Eschpuschta, 1500 m, *Gilli* 3480.



FIG. 4. Distribution of the species of *Perovskia* Kar. The records from the USSR have been taken from Kudrjaschew's monograph. ○ *P. abrotanoides*; ● *P. angustifolia*; ▲ *P. scrophulariifolia*; △ *P. virgata*; ● *P. linczevskii*; ● *P. atriplicifolia*; □ *P. kudrjaschevi*.

W PAKISTAN. Quetta: Zhob valley, Peters; Loralai to Harnai, Torkhan Pass, 1900 m, Lamond 1240; Ziarat, Lace 4009; Urak, Crookshank 105; near Quetta, Popov 275. Baluchistan, Stocks 1112 (type of *P. artemisioides* Boiss.).

RANGE: Afghanistan, W Pakistan, Kashmir, Tian Shan, Kopet Dagh, NE Iran, Tibet.

The most widely distributed species of the genus, *P. abrotanoides* is a fairly constant taxon. The leaves are generally bipinnatisect but in some of the specimens they are scarcely so. Although there is an almost continuous range in leaf shapes from entire margins to simply pinnate there is a break in the variation range between the simply pinnate and the bipinnate leaf. Other than the leaf character that separates *P. abrotanoides* from the other species, there are no other satisfactory distinguishing features. In calyx and corolla characters, all the species are most similar.

## 2. *P. atriplicifolia* Benth. in DC., Prodr. 12: 260 (1848). Ic.: Bot. Mag. t. 8441 (1912).

TYPE. Afghanistan, Griffith (K).

AFGHANISTAN. Kabul: Paghman, Koelz 12084, Neubauer 3229; Sher Darwasa, 1800 m, Hedge & Wendelbo W. 4296; Kabul to Lataband, 1900 m, Lamond 1952; Tang-i-Gharu, 1740 m, Gilli 3481, Neubauer 3163; Sheikhabad, inter Kabul et Ghazni, 2300 m, Rechinger 17267; Kabul to Charikar, 1950 m, Podlech 11635. Paktia: SE Gardez on road to Khost, Rechinger 32087. Ghorat: Parjuman, 1850 m, Rechinger 19055. Ghazni: inter Qarabagh et Sang-i Masha, 2000 m,

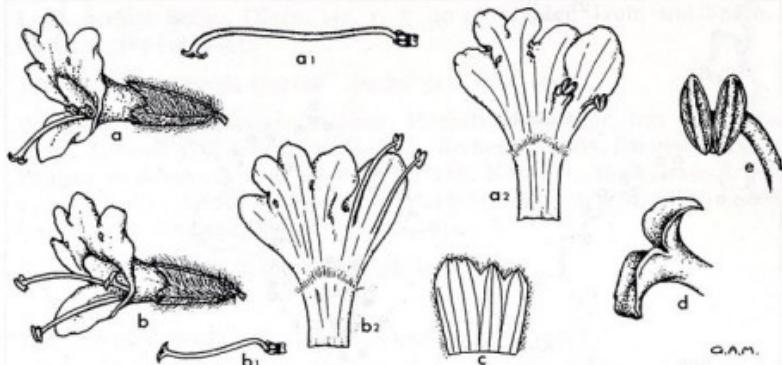


FIG. 5. *Pervoskia atriplicifolia* Benth. *a*, long-styled flower with, *a<sup>1</sup>*, style and *a<sup>2</sup>*, corolla opened out. *b*, short-styled flower with, *b<sup>1</sup>*, style and *b<sup>2</sup>*, corolla opened out. *c*, calyx. *d*, stylar arms *e*, anther. *a*, *b* and *c* x 3, *d* and *e* x 12.

*Rechinger* 17376; in jugo Sardalu, W Qarabagh, 2300 m, *Rechinger* 17346. Orozgan: Orozgan, *Lindberg* 928. Qataghan: Pol-i-Khomri, *Rechinger* 16507; Andarab valley, 1600 m, *Podlech* 11674; Khost-o-Fereng, 2100 m, *Podlech* 12004.

W PAKISTAN. Kurram: Kurram valley, *R. R. Stewart* 28047, *Aitchison* 644. Quetta: Luk pass, between Quetta and Mastung, *Jafri & Akbar* 2015. Chitral: Drosh, *Stainton* 3180, *Toppin* 399, *Harriss* 16536; Chitral, *Stainton* 2537.

RANGE: Afghanistan, W Pakistan.

This species is represented by numerous gatherings from Afghanistan. It is variable in leaf shape, density of indumentum and degree of branching. Some of the facets of its variation approach very closely some of the species recognised by Kudrajschew. For example, using his key, some of the Afghan gatherings run down to *P. angustifolia* Kudr. and *P. scrophulariifolia* Bge. Little C Asiatic material has been available for study but it seems that at least these two species come within the range of variation that occurs in the Afghanistan material of *P. atriplicifolia* of which apparently Kudrajschew saw no authentic gatherings. In Afghanistan, several varieties could be recognized based on leaf shape and indumentum characters but in the meantime until a comprehensive review has been undertaken, I prefer not to recognise subspecific taxa.

The calyx is usually densely covered with long white eglandular hairs but in *Rechinger* 19055 and *Podlech* 12626 (Qataghan, Farkhar) the calyx indumentum consists only of stellate hairs.

#### PHLOMIS L., Sp. Plant. 584 (1753); Gen. Plant. ed. 5: 255 (1754)

- |  |   |
|--|---|
| 1. Lower leaves broad-ovate, deeply cordate at base . . . . .                                  | 2 |
| + Lower leaves narrow-ovate to linear-elliptic, cuneate, rounded or truncate at base . . . . . | 5 |
| 2. Stem 4-angled with usually simple hairs or glabrous . . . . .                               | 3 |
| + Stem terete with stellate hairs or glabrous . . . . .  | 4 |

- 3. Calyx teeth and bracts rigid,  $\pm$  spine-tipped . . . . . 6. *Ph. setigera* [Falc. ex] Benth.
- + Calyx teeth and bracts not rigid, spines absent or inconspicuous . . . . . 7. *Ph. bracteosa* [Royle ex] Benth.
- 4. Branched herb up to 2 m; stem hollow usually glabrous and glaucous; upper surface of leaf scabrid with  $\pm$  simple hairs . . . . . 8. *Ph. spectabilis* [Falc. ex] Benth.
- + Unbranched herb up to 60 cm; stem solid, tomentose; upper surface of leaf softly hairy with stellate hairs . . . . . 9. *Ph. canescens* Rgl.
- 5. Inflorescence of  $\pm$  contiguous verticils; leaves linear-oblong, 3-nerved . . . . . 2. *Ph. trineura* Rech. f.
- + Inflorescence of distinct verticils; leaves ovate or elliptic, many-nerved . . . . . 6
- 6. Verticils 5-9, few (4-6)-flowered; flowers yellow, occasionally brownish-red . . . . . 1. *Ph. bucharica* Rgl.
- + Verticils 1-4, many-flowered; flowers white, pink or purple . . . . . 7
- 7. Flowers white; bracts with stiff stellate hairs, rays clearly unequal . . . . . 5. *Ph. cancellata* Bge.
- + Flowers pink or purple; bracts with soft stellate hairs, rays of  $\pm$  equal length . . . . . 8
- 8. Subshrub; leaves all similar, attenuate into a short (up to 1.5 cm) petiole or  $\pm$  sessile . . . . . 4. *Ph. stewartii* Hook. f.
- + Herb; basal leaves long (4-16 cm) petiolate, upper shortly so, all  $\pm$  truncate and often uneven at base . . . . . 3. *Ph. cashmeriana* [Royle ex] Benth.

**1. *Ph. bucharica* E. Regel in Acta Hort. Petrop. 9, 2: 579 (1886).**

Several syntypes from Tadzhik SSR: region of upper Amu Darya and tributaries, 700-2000 m, *A. Regel* (LE—n.v., E, K).

AFGHANISTAN. Mazar-i-Sharif: between Samangan and Mirza Atibili Pass, SE of Samangan, 1250 m, *Hedge & Wendelbo* W. 4007, W. 4008. Qataghan: Qunduz, 450 m, *Rechinger* 16096; Surkhab river, S of Ailabad, *Podlech* 11345; Paigh Kotal, Haibak to Pul-i-Khumri, 1500 m, *Rechinger* 16445 a, b. Badakshan: Warduj valley, 100 km W of Faizabad, 900 m, *Furse* 6467. ?; Rustak, 1220 m, *Koelz* 13124.

RANGE: N Afghanistan, Turcomania.

The *Koelz* specimen cited above is wrongly recorded in *Biologiske Skrifter* 8, 1: 56 (1954) as *Ph. rhipoides* Bge. This purple-flowered species from the Pamir-Alai region has not yet been found in Afghanistan; it differs from *Ph. bucharica* in the smaller ovate leaves and very short calyx teeth.

Kitamura (Fl. Afghanistan, 343, 1960) records *Ph. olgae* E. Regel from between Pul-i-Khumri and Haibak and from Qunduz. Without having seen the specimens the localities suggest that they have been misidentified and the plants are, in fact, *Ph. bucharica*. *Ph. olgae* from the Pamir-Alai is a purple-flowered species with broad ovate leaves, often cordate at the base and very long, often simple bracts.

*Ph. bucharica* is quite a characteristic plant of some parts of N Afghanistan forming bushy clumps amongst steppic vegetation.

In flower colour it varies from yellow to brownish-red even within the same population (cf. Hedge & Wendelbo W. 4007 and 4008 and Rechinger 16445 a and b) but there is no discernible morphological difference between them.

**2. *Ph. trineura*** Rech. f. in Biol. Skr. 8, 1: 56 (1954). Ic.: l.c. fig. 33.

TYPE. Afghanistan. Mazar-i-Sharif: Akupruk, 2438 m, c. 2 ft. high, flowers magenta, 11 ix 1939, Koelz 13965 (holo-W, iso-BPI n.v.).

RANGE: N Afghanistan.

This distinct late-flowering species is only known from the type locality. It apparently occupies a fairly isolated position in the genus although the white-flowered *Ph. chorassanica* Bge. from NE Iran is probably, from its description, the closest ally of *Ph. trineura*. In both species, the verticils on the flowering stems are almost contiguous and bear flowers from ground level.

**3. *Ph. cashmeriana* [Royle ex] Benth. in Hook., Bot. Misc. 3: 382 (1833). Ic.: Royle, Ill. Bot. Himal. 303, t. 75a (1836); Bot. Reg. 30, t. 22 (1844); Biol. Skr. 8, 1: fig. 32, (1954) (sub *Ph. dichroa*).**

Syn.: *Ph. dichroa* Rech. f. in Biol. Skr. 8, 1: 54 (1954).

TYPE. India: "Cashmere" Royle.

AFGHANISTAN. NE: Khash district, 2438–3048 m, Koelz 12918 (type of *Ph. dichroa*), Koelz 13000. Badakshan: Faizabad to the Amu Darya, Gilli 3613. Qataghan: Khost-o-Fereng, 2700 m, Podlech 11784; Andarab Valley, Darrah-i-Kasan, NE Deh-Salah, 2400 m, Podlech 11709; Salang Pass, N side, 1100–2500 m, Furse 6616, Rechinger 31728, Podlech 11562. Nangarhar: Ashpei, 2300 m, Edelberg 1665. Parvan: Salang Pass, S side, 2250–3000 m, Lamond 2070, Podlech 12231, Rechinger 31326; Bagram, Nedjerau Valley, 3000 m, Neubauer 221. Paktia: Ali Khel and Peiwar Kotal, Aitchison 565, Lamond 2481, Rechinger 32261.

W PAKISTAN. Chitral: Bashgalian, SW of Chitral, 2438 m, Stainton 2701; Broz, Harriss 16482; Drosh, Toppin 353.

RANGE: Afghanistan, NW Pakistan, Kashmir, Turcomania.

There is a considerable range of variation within the cited specimens. Between those from the SE of the range which are erect, unbranched plants with a dense, floccose indumentum on the stem (which is however deciduous and easily rubbed off) and the shorter, branched, less densely tomentose specimens from N Afghanistan is found a complete range of intermediate forms. Two separate sheets of Stainton 2701 show branched and unbranched plants and specimens from the Salang area have both densely tomentose and almost glabrous stems.

*Ph. dichroa*, described from specimens without basal parts, cannot be maintained as a separate species when the complete range of variation in *Ph. cashmeriana* is seen. Another probable synonym is *Ph. fruticetorum* Gontsch. (Izv. Tadz. Bazy Bot. 2: 186, 1936—syn. *Ph. salicifolia* E. Rgl. var. *intermedia*

E. Rgl.). One A. Regel specimen of this from the upper reaches of the Amu Darya has been examined and is indistinguishable from the N Afghan plants. The characters given by Knorring in his key to the Soviet species (Komarov, Fl. URSS 21: 59, 1954) to distinguish *Ph. fruticetorum* and several other apparently closely allied species are most unsatisfactory, at least when working with dried material.

#### 4. *Ph. stewartii* Hook. f., Fl. Brit. India 4: 692 (1885).

TYPE. W Pakistan. Beyond the Indus, on the Suliman and Salt ranges, 2500–4500 ft, Stewart, Talbot (K).

W PAKISTAN. S Waziristan: Wana, 1500 m, Lowndes 660, Duthie 15677. Dera Ismail Khan: Sulaiman Range, 60–80 km E of Fort Sandeman, Rechinger 29934, 30134, Lamond 1493. Dera Ghazi Khan: Sulaiman Range, Fort Munro, 16–1800 m, Rechinger 29754, Lamond 1395. Quetta: Gumbaz to Barkhan, 1000 m, Lamond 1375; Torkhan, Rechinger 29450; Ziarat to Sanjawi, Lace 72, Rechinger 29400, Lamond 1222. Baluchistan: Kalat; Mastung, Fairervis 1.

RANGE: W Pakistan.

This is a dwarf shrub with dusky-pink flowers growing on dry stony ground and a common plant within its rather restricted area.

Although not yet found in Afghanistan the presence of *Ph. stewartii* in Waziristan fairly close to the Afghan frontier indicates that with further collecting it will be found in the SE of the country.

The indumentum on stem and leaves often turns to a distinctive yellowish colour on herbarium sheets.

#### 5. *Ph. cancellata* Bge., in Mem. Acad. Sc. Petersb. 7 ser., 21, 1: 76 (1873). [Lab. Pers.]. Ic.: Komarov, Fl. URSS, 21: t. 4 (1954).

TYPE. NE Persia: 'in rupestribus montium ad occidentem ab urbe Schahrud, Bunge & Bienert' (P?—n.v. LE?—n.v.).

IRAN. Gorgan: mountains S of Shah Pasan by pass to Shahrud, 2133 m, Furse & Synge 514. Khorasan: Bezd, 1219 m, Aitchison 656 (wrongly determined as *Ph. herba-venti* L. and recorded as such in Trans. Linn. Soc. Bot. 3, 1: 98, 1888).

AFGHANISTAN. Herat: Ardewan, 1500 m, Koeie 2249.

RANGE: NW Afghanistan, Turcomania, NE Iran, Transcaucasus (?).

The record of this species in Fl. URSS (21: 84, 1954) from Ordubad in the S Transcaucasus requires confirmation.

#### 6. *Ph. setigera* [Falc. ex] Benth. in DC., Prodr. 12: 543 (1848).

TYPE. "In Bhudrinath Indiae Or.," Falconer (K).

W PAKISTAN. Chitral: Mirza, 2280 m, Harriss 16479.

RANGE: W Pakistan, Himalayas.

Very closely related to the following species and possibly not specifically distinct. *Harsukh* 15448 and 15447 from the Kurram Valley originally determined as "Ph. *setigera* var.," are intermediate between *Ph. setigera* and *Ph. bracteosa*.

**7. Ph. bracteosa** [Royle ex] Benth. in Hook. Bot. Misc. 3: 383 (1833).

TYPE. India. Simla/Tehri Garwhal: Choor mountain and Kedarkonta, *Royle* (K).

AFGHANISTAN. Nangarhar: Kamdesh, 2800 m, *Gilli* 3614; Shtive, 2600 m, *Edelberg* 1290.

W PAKISTAN. Chitral: Drosch (Beorai), 3656 m, *Bowes Lyon* 191. Kurram: Shendtoi, 2438 m, *Aitchison* 777.

RANGE: E Afghanistan, NW Pakistan and throughout the Himalayas to China.

**8. Ph. spectabilis** [Falc. ex] Benth. in DC., Prodr. 12: 542 (1848). Ic.: Bot. Mag. t. 8870 (1920).

TYPE. India "in valle Cachemiriana," *Falconer* (K) *Jacquemont* (K).

AFGHANISTAN. Gardez: mountains E of Altimur Pass, 2800 m, *Rechinger* 32001, *Lamond* 2411; Sata Kandao Pass, Gardez to Khost, 2900 m, *Rechinger* 32110. Khost: SW of Sata Kandao, 2800-2200 m, *Rechinger* 32132. Paktia: Pewar Kotal, 2600 m, *Collett* 106.

W PAKISTAN. Chitral: Mirza to Dir, 1980 m, *Harriss* 16481; Singarh, *Harsukh* 20623. Quetta: Ziarat, 2000-2500 m, *Lace* 3875, *Lamond* 1195. Kurram: Khaiwas to Shalizan, *Aitchison* 708, 749.

RANGE: Afghanistan, W Pakistan, Kashmir.

Two apparently distinct forms of this species are recognisable and occur throughout its range. The Chitral plant, in common with some of the specimens seen from Kashmir, has a hoary indumentum on the stem whereas the Afghanistan and Ziarat specimens agree with the original type description in having glabrous stems, often glaucous and maroon. This is clear even at a very young stage (*Lamond* 1195). The *Aitchison* specimens from the Kurram exhibit both these forms, the taller, and more typical plant being uniformly glabrous, and the smaller, tomentose in the inflorescence region.

*J. L. Stewart* 2708, for which no provenance can be traced, bears a superficial resemblance to specimens of *Ph. canescens* E. Rgl. but the leaf indumentum is typical of *Ph. spectabilis*.

**9. Ph. canescens** E. Rgl. in Acta Hort. Petrop. 9, 2: 582 (1886). Ic.: Komarov, Fl. URSS, 21; t. 6 (1954).

SYNTYPES. Tadzhik SSR "in Turkestania sarafchanica prope Iskanderkul, O. Fedtschenko (LE—n.v.); prope Kschut apud fluvium Woru; in angustiis Jangturutsch ad lacum Kulikalan (E); et ad montium Mura" A. Regel (LE—n.v.)

AFGHANISTAN. Parvan: Panjshir Valley, Darrah Rastagal, 3800 m, *Hedge & Wendelbo* W. 5215. Parvan/Kabul: Gulbahar to Sarobi, 3310 m, *Gilli* 3617. Kabul: Paghman, 2700–3000 m, *Hedge & Wendelbo* W. 4414, *Koelz* 11113, *Gilli* 3615, 3616, *Rechinger* 17104. Gardez: Altimur Pass (Kotal Tera), 23 km N of Gardez, 26–2700 m, *Rechinger* 31928, *Lamond* 2399.

RANGE: Afghanistan, Pamir-Alai.

The density of the indumentum on the calyx and bracts varies considerably on the specimens seen. Most of those from Afghanistan have only small, adpressed stellate hairs on the calyx and similar hairs, inter-mixed with longer simple ones, on the bracts; *Gilli* 3617 has these simple hairs on the calyx also and in this character matches some of the C Asiatic specimens examined. Bract length is also variable and may be shorter or longer than the calyx.

**PLECTRANTHUS L'Herit., Stirp. Nov. 4, 84 verso (1788).**

Syn.: *Isodon* [Schrad. ex] Benth., Lab. Gen. et Sp. 40 (1832).

**1. P. rugosus [Wall. ex] Benth. in Wall., Pl. As. Rar. 2, 17 (1830–31).**

Syn.: *Isodon plectranthoides* [Schrad. ex] Benth., Lab. Gen. et Sp. 40: 1832.

TYPE. India. "Simla ad Choor", *Wallich*.

AFGHANISTAN. Nuristan: Seprigal to Voma, *Kitamura* (n.v.); Kulam valley, 2743 m, *Thesiger* 1646; Ningalam to Darim, 13–1900 m, *Neubauer* 970; Kam-desh, 1400 m, *Edelberg* 1154; Chandau, 2440 m, *Koelz* 11770; Nidjaro, 2000 m, *Volk* 2376.

W PAKISTAN. Chitral: Broz, 1560 m, *Harriss* 16538; Shishi Gol, NE of Droshe, 2133 m, *Stainton* 3157. Swat: Madyan to Kalam, 1700 m, *Rechinger* 19373. Peshawar: Cherat, 1300 m, *Halcro Johnston*. Kurram: near Shalizan, *Aitchison* 806 (n.v.) Waziristan: Razmak, 1700 m, *Lowndes* 13. Quetta: Gumbaz to Barkhan, 1050 m, *Lamond* 1367, *Rechinger* 29671, 29672; Ziarat, 2438 m, *Lace* 4023; Bugti, Kahan, 2133 m, *Crookshank* 470. Dera Ghazi Khan: Sulaiman Range, Fort Monro, 1600 m, *Lamond* 1391.

RANGE: E Afghanistan, W Pakistan and throughout the Himalayas.

This is a good example of a Himalayan species reaching the western extremity of its range in our area (see Studies in Flora of Afghanistan: viii, fig. 4).

R. R. Stewart (in litt.) records *P. coetsa* [Ham. ex] D. Don from Chitral and Swat. It is distinguished from *P. rugosus* by the larger leaves and the leaf indumentum which consists of sparse hairs on the lower surface. No specimens have been seen.

**PRUNELLA L., Sp. Plant. 600 (1753); Gen. Plant. ed. 5: 261 (1754).**

**1. P. vulgaris L., Sp. Plant. 600 (1753).**

Described from Europe. Type in Hort. Cliff. (n.v.).

AFGHANISTAN. Qataghan: Salang Pass (N), 1800–2100 m, *Podlech* 11543, *Frey* 53, *Furse* 6560. Parvan: Salang Pass (S), N of Charikar, 1900–2200 m, *Rechinger* 31293. Kabul: Istalif, *Rechinger* 31191; Paghman, 2600 m, *Volk* 974, *Gilli* 3590.

W PAKISTAN. Chitral: Bashgalian Deh, SW of Chitral 2450 m, *Stainton* 3229. Swat: Kalam, 2200 m, *Rechinger* 19473. Kurram: Karman Village, foothills of Safed Kuh, *Afendi* 33.

RANGE: temperate regions of the N hemisphere.

**SATUREIA** L., Sp. Plant. 567 (1753); Gen. Plant. ed. 5: 247 (1754).

**1. S. hortensis** L., Sp. Plant. 568 (1753).

Type. "Hab. in Narbonensi et Italia" (LINN—photo!).

W PAKISTAN. Chitral (R. R. Stewart in litt.).

RANGE: SW Asia, Europe and cultivated throughout the temperate regions of the world.

Occasionally planted and occurring as an escape from cultivation.

**SCUTELLARIA** L., Sp. Plant. 598 (1753); Gen. Plant. ed. 5: 260 (1754).

In the Afghanistan area, as in other parts of SW Asia, *Scutellaria* is a most complex genus taxonomically. The exact specific limits of almost every species dealt with in this account are uncertain and very difficult to define.

- |    |  |  |
|----|--|--|
| 1. | Rock crevice tuft-forming species; scutellum on calyx absent . . . . .   | 2  |
| +  | Not rock crevice tuft-forming species; scutellum on calyx present or not . . . . .                                       | 4  |
| 2. | Stem indumentum of very short adpressed hairs; calyx c. 4·5 mm long; corolla violet-blue . . . . .                       | 12. <i>S. ariana</i> Hedge                 |
| +  | Stem indumentum of long spreading hairs; calyx c. 2 mm long; corolla pinkish-white . . . . .                             | 3  |
| 3. | Corolla 20–25 mm, tube 1–1·5 mm broad . . . . .  | 14. <i>S. stocksii</i> Boiss.              |
| +  | Corolla usually 30–40 mm, tube 1 mm broad or if corolla 23–25 mm, tube 0·5–0·8 mm broad . . . . .                        | 15. <i>S. leptosiphon</i> Nevskaia         |
| 4. | Flowers in short terminal spikes; bracts very prominent . . . . .  | 5  |
| +  | Flowers in racemes; bracts inconspicuous . . . . .   | 7  |
| 5. | Calyx inflating in fruit; high alpine scree plant . . . . .  | 6  |
| +  | Calyx not inflating in fruit; not high alpine scree plants . . . . .   | 5. <i>S. teucriifolia</i> Dunn             |
| 6. | Leaf lamina 3–5 mm long . . . . .  | 11. <i>S. macrochlamys</i> Rech. f. & Fitz |
| +  | Leaf lamina 10–12 mm long . . . . .  | 10. <i>S. heydei</i> Hook f.               |
| 7. | Indumentum of whole plant consisting of long glandular and eglandular hairs . . . . .                                    | 2. <i>S. glutinosa</i> Benth.              |
| +  | Indumentum of whole plant not as above; long glandular hairs if present restricted to the inflorescence region . . . . . | 8  |
| 8. | Leaves linear; corolla purplish-pink . . . . .   | 6. <i>S. linearis</i> Benth.               |
| +  | Leaves ovate to triangular-ovate; corolla bluish-violet, dark violet or yellowish . . . . .                              | 9  |

9. Lower leaf laminae (2-) 3-5 cm long, broad ovate, clearly cordate, rounded or truncate at base . . . . . 10  
 + Lower leaf laminae 1-1.5 cm long, usually narrow ovate triangular, truncate or rarely subcordate at base . . . . . 12
10. Stems 10-15 cm high; leaves densely glandular . . . . . 9. *S. neubaueri* Rech. f.  
 + Stems 10-70 cm high; leaves not densely glandular . . . . . 11
11. Stems sturdy up to 70 cm; leaves clearly cordate; corollas indistinctly curved . . . . . 8. *S. nuristanica* Rech. f.  
 + Stems slender up to 25 cm; leaves rounded or truncate; corollas clearly curved . . . . . 7. *S. petiolata* Hemsl. & Lace
12. Leaves glabrous or with a very short scattered indumentum; corolla dark violet . . . . . 13. *S. ghorana* Hedge  
 + Leaves with a prominent continuous indumentum; corolla yellowish . . . . . 13
13. Leaves bluntly toothed or subentire; corolla 2-3 cm, tube 1-1.3 mm broad (only in NW Afghanistan) . . . . . 4. *S. litvinowii* Bornm.  
 + Leaves serrate or dentate; corolla c. 2 cm, tube c. 1 mm broad (widespread except in NW) . . . . . 14
14. Decumbent-ascending habit; leaves broad ovate-triangular, serrate; leaf indumentum denser below than above . . . . . 3. *S. edelbergii* Rech. f.  
 + Erect habit; leaves narrow ovate-triangular; leaf indumentum ± same above and below . . . . . 1. *S. multicaulis* Boiss.

**1. *S. multicaulis* Boiss.**, Diagn. ser. 1, 7: 61 (1846). Ic.: Biol. Skr. 8, 1: fig. 5 (1954) (sub. *S. lorinjensis* Rech. f. & Fitz).

Syn.: *S. multicaulis* Boiss. var *cabulica* Boiss., Fl. Orient. 4: 684 (1879).

*S. koelzii* Rech. f. in Biol. Skr. 8, 1: 17 (1954).

*S. lorinjensis* Rech. f. & Fitz, l.c. 19.

**TYPE.** Persia: Fars, Kuh Daena, Kotschy 526 (holo G—n.v., iso—E, W).

AFGHANISTAN. Paktia: Jaji, Said Karam to Ahmad Khel, 2600 m, *Lamond* 2467. Ghorat: SW Naourak, 2480 m, *Rechinger* 18948; in jugo Tang-i Sorch (Surkh) inter Qala Chahrak (Sharak) et Chisht (Tschischt), *Rechinger* 19176. Orozgan: Kouk-Garm Ab, *Lindberg* 1960: 971. Gardez: montes Safed Kuh, *Rechinger* 32013; Darreh Darang, *Lindberg* 1962: 1. Ghazni: Kouh Mostoufi near Robat, *Lindberg* 1958: 249; Loman, inter Qarabagh et Sang-i Masha, *Rechinger* 17426; Sang-i Masha, *Rechinger* 17469. Kabul: Sar e Cheshma, 2250 m, *Hedge & Wendelbo* W. 4463; Abdullah between Bisut and Unai, 2800 m, *Hedge & Wendelbo* W. 5042; 75 km from Kabul on road to Gardez, 2100 m, *Lamond* 2156; Panjao, 2700 m, *Hedge & Wendelbo* W. 4892; Paghman, 2600-3400 m, *Hedge & Wendelbo* W. 4360, *Gilli* 3584, *Podlech* 11582; Tang-i Gharu, hill near Maipar, *Gilli* 3581. C: Lorinj pass, *Koelz* 13741 (type of *S. lorinjensis*) E: Sirota, *Koelz* 11947 (type of *S. koelzii*). Bamian: Koh-i Baba, near Bamian, *Gilli* 3583; Band-i Panir, 2800 m, *Rechinger* 18347; NE of Hadjigak pass, 3000 m, *Rechinger* 18498; Bamian, 2500 m, *Hedge & Wendelbo* W. 4650. Qataghan: Khost-o-Fereng, 2100 m, *Podlech* 11884.

**RANGE:** Afghanistan, Iran.

A very common plant in Afghanistan, *S. multicaulis* is a most polymorphic species with much variation in habit, leaf shape, indumentum, corolla size, colour and shape. For example, the indumentum may consist of eglandular hairs below and long glandular hairs on the inflorescence axis, or may consist of only eglandular hairs or else the leaves may be thickly covered with sessile glands; the corolla colour is basically a yellow tube and a violet tip but the tube may be yellowish green or white and the tip may be bright reddish-purple, deep violet or blue. The impression formed from study of a large number of gatherings and field observations is that only one taxon can be easily recognised and that the innumerable environmental forms are not worth formal taxonomic recognition. The different habitats recorded for *S. multicaulis* are near cultivation, mobile scree, stony slopes, riverside gravel, semi-desert and steppe. In altitude it is recorded from 1700 to 3400 m.

**2. *S. glutinosa*** Benth. in DC., Prodr. 12: 419 (1848). Ic.: Biol. Skr. 8, 1: fig. 10 (1954) (sub. *S. polyadenia*).

Syn.: *S. polyadenia* Rech. f. in Biol. Skr. 8, 1: 24 (1954).

TYPE. Afghanistan, Griffith (holo—K).

AFGHANISTAN. Kabul: Unai, 3100 m, Rechinger 18105, 18559; Sar-e Cheshme, 2250 m, Hedge & Wendelbo W. 4463. Nuristan: Purdam pass (Kulam side), 3700 m, Thesiger 1615; Daulatshah, Koelz 11641 (type of *S. polyadenia*). Paktia: Jaji, Said Karam to Ahmad Khel, 2600 m, Lamond 2467, Rechinger 32167; between Dre Kalla and Qasim Khel, Rechinger 32300.

RANGE: Afghanistan.

*S. glutinosa* is recognised by the arcuate-ascending habit and the indumentum of long spreading glandular and eglandular hairs on the ovate-triangular leaves. Although specimens with these characters can fairly readily be picked out, there is no doubt that *S. glutinosa* is closely related to *S. multicaulis* and may only be a variant of it.

**3. *S. edelbergii*** Rech. f. in Biol. Skr. 8, 1: 15 (1954). Ic.: l.c. fig. 3.

Syn.: *S. swatensis* Murata in Acta Phytotax. Geobot. 19: 107 (1963), n.v. Ic.: l.c. fig. 56.

TYPE. Nuristan: Chetras, 2800 m, 30 v 1948, Edelberg 846 (holo—W, iso—C. n.v.).

AFGHANISTAN. Nuristan: Kuschtos, 2000 m, Neubauer 3365; Kamdesch, Edelberg 1140; Pashki, 2600 m, Edelberg 739; Kamdesch, Rain, 2000 m, Gilli 3580. Badakshan: Doavi, Lindberg 1959: 701. Parvan: Panjshir valley, Darrah Rastagal, 3200 m, Hedge & Wendelbo W. 5233; Salang pass, 2700 m, Lamond 2199, Stainton 5077.

W PAKISTAN. Chitral: Chitral Gol, W of Chitral, Stainton 2683; Lutko, Bowes Lyon 815; Zapotili, 3500 m, Wendelbo s.n. Swat: Utror, prope Kalam, 2200 m, Rechinger 30819.

RANGE: Afghanistan, W Pakistan (Chitral, Swat).

The specimens above are characterised by the decumbent-ascending habit and the ovate-triangular leaves with an eglandular indumentum thicker on the lower leaf surface. *S. edelbergii* is a near relation of *S. multicaulis*; some of the specimens cited approach it quite closely (e.g. the Chitral plants), others are closely allied to *S. glutinosa* (e.g. the Salang gatherings). I have not been able to examine the type and only gathering of *S. swatensis* but the original description and illustration leave little doubt that it is the same as *S. edelbergii*. Rechinger 30819, gathered near the type locality of *S. swatensis* agrees well both with that species and the rest of the *S. edelbergii* material.

The following specimens are anomalous in the dwarf almost prostrate habit and the broad bracts. They may represent a separate taxon.

AFGHANISTAN. Paktia: Peiwar Kotal, c. 2800 m, Rechinger 32265; Khost, Gabr Tal, Neubauer s.n. W PAKISTAN. Quetta: Urak, Repp s.n.; E of Ziarat, 2500 m, Rechinger 29390.

**4. *S. litvinowii*** Bornm., Russk. Bot. Zhurn. 1, 8 (1914). Ic.: Komarov, Fl. URSS 20: t. 7, fig. 4 (1954).

TYPE. Turkmen SSR. Kizyl Arvat, Karakala, Kutenak, Sintenis 1726 (E, W).

AFGHANISTAN. Herat: Badghis, Aitchison 474.

RANGE: NW Afghanistan, Mountain Turkmenia.

Differing from *S. multicaulis* in the bluntly toothed or subentire leaves and the larger, broader-tubed corollas.

**5. *S. teucriifolia*** Dunn, Kew Bull. 1924: 386 (1924).

Several syntypes from Kashmir, Gilgit and Swat (K).

W PAKISTAN. Chitral: Jambatai, Harriss 16477; Madaklasht, 3900 m, Stainton 3121. Swat: Khawazakhela to Shangla, c. 1700 m, Lamond 1706, Rechinger 30629.

RANGE: Gilgit, Swat, Chitral, Kashmir.

This species is recognised by the broad leaves, broad greenish-violet bracts and the condensed spikes. The corollas are usually pale yellow with purple tips.

**6. *S. linearis*** Benth. in Wall., Pl. As. Rar. 1: 66 (1830).

TYPE. Kumaon, Wallich 2137 (holo—K).

AFGHANISTAN. Paktia: Akakaol, Volk 1105; NW of Khost, Neubauer ann. 1963 s.n.

W PAKISTAN. Kurram: Kohat to Parachinar, Lamond 1869; Parachinar, Rechinger 30953, Lamond 1876, R. R. Stewart 28060; between Hangu and Thal, Rechinger 30880; from Thal to Kurram and Shalizan, Aitchison 273. Quetta: Torkhan pass, Loralai to Harnai, Lamond 1261, Rechinger 29515a, 29515b; Quetta, Lace 3487. Peshawar: Cherat, SE of Peshawar, Lamond 1569, Rechinger 30260a, 30260b. Chitral (?): Panjkora, Harriss 16473.

RANGE: W Pakistan, Kashmir, Kumaon.

This is apparently a distinct species recognised by the thick woody rootstock, the prostrate-ascending branches, linear leaves and purplish-pink flowers. Its range of variation is relatively small although there is some variation in the indumentum on the inflorescence. Generally, it consists of long capitate glandular and eglandular hairs but sometimes is entirely eglandular. Two aberrant forms (*Rechinger* 29515b and 30260b), gathered in populations of otherwise typical plants, differ in the sub-erect habit, the broad oblong leaves and the yellowish corollas.

**7. *S. petiolata*** Hemsl. & Lace in Journ. As. Soc. Bengal 59, 2: 308 (1890); Journ. Linn. Soc. 28: 326 (1891).

TYPE. W Pakistan: Quetta, Ziarat, *Lace* 4006. (K, E).

W PAKISTAN. Quetta: Gumbaz to Barkhan, 1050 m, *Lamond* 1370, *Rechinger* 29664.

RANGE: W Pakistan (Quetta).

See remarks under the following species.

**8. *S. nuristanica*** Rech. f. in Biol. Skr. 8, 1: 22 (1954). Ic.: l.c. fig. 8.

Syn.: *S. poliochlora* Rech. f. & Edelberg, l.c. 24.

TYPE. Afghanistan. Nuristan: between Ningalam (1300 m) and Darim Ort (1900 m), 5 viii 1951, *Neubauer* 51: 971 (holo—W).

AFGHANISTAN. Kabul: Tangi Gharu, Maipar, 1600 m, *Gilli* 3586. Nuristan: Landesi, *Neubauer* 3302; Dschunia, 1800 m, *Gilli* 3587; Kulam gorge, *Thesiger* 1638, 1645; Kamdesh to Barikot, *Edelberg* 1792 (type of *S. poliochlora*).

W PAKISTAN. Chitral: Beorai Gol, S of Drosh, *Stainton* 3259; Ghairat, *Toppin* 814.

RANGE: Afghanistan, Chitral.

*S. nuristanica* is a close ally of *S. petiolata* but with the available material it differs in the larger bracts, the less strongly curved corollas and the leafier stems; it is also a taller, sturdier plant. The leaves in *S. nuristanica* may be glabrous (*Stainton* 3259) provided with a short indumentum (*Neubauer* 51: 971) or with a dense indumentum (*Edelberg* 1792); all transitions occur.

Although there is an apparent distributional gap between Quetta (*S. petiolata*) and Kabul (*S. nuristanica*), forms may be found in the intervening area, e.g. Waziristan, which might bridge the differences between the two species.

**9. *S. neubaueri*** Rech. f. in Biol. Skr. 8, 1: 22 (1954).

TYPE. Afghanistan: Nuristan, between Waigel and Nischai, 12 viii 1951, 51: 737 (holo—W).

RANGE: E Afghanistan.

Only known from a single gathering, *S. neubaueri* is allied to *S. nuristanica* but differs in the hispid-villose glandular indumentum and the dwarf stems.

More gatherings from this area are needed but it may well be only a habit form of *S. muristanica*.

**10. *S. heydei* Hook. f., Fl. Brit. India 4: 667 (1885).**

TYPE. Kashmir: Zanskar, Thomson, Heyde (K).

AFGHANISTAN. Badakshan: Panjshir valley, E side of Anjuman pass, 3500 m, Hedge & Wendelbo W. 5482; Wakhan, Noshaq, 4000 m, Roemer 217.

W PAKISTAN. Chitral: Sora Lasht, 3900 m, Bowes Lyon 1091; Rosh Gol, NE of Tirich Mir, 3600 m, Stainton 2822; below Jamishi ghochar, 3900 m, Wendelbo s.n.; upper Yarkhun valley, Schmid s.n.

RANGE: E Afghanistan, Gilgit, Chitral, Kashmir, Tibet.

This high alpine scree species is still little known in our area and consequently its complete range of variation is uncertain. However, it appears to be a most variable species in indumentum, bract size and corolla shape. More than one taxon may be involved but better material, studied in conjunction with the Soviet material of this complex, is needed before the problem can be elucidated. *S. physocalyx* Rgl. & Schmalh. and several allied species recognised by Juzepcuk (Flora URSS 20: 199-207, 1954) appear to be very close to *S. heydei* but this specific name does not occur in Juzepcuk's account.

*S. jodudiana* B. Fedtsch. (*S. physocalyx* var *jodudiana* (B. Fedtsch.) M. Pop.) was recorded by Kitamura (Additional Reports, Kyoto 136, 1966) from the Noshaq area of Wakhan. I have not seen this specimen but the Roemer gathering from the same area, cited above, is certainly *S. heydei*.

**11. *S. macrochlamys* Rech. f. & Fitz in Biol. Skr. 8, 1: 21 (1954). Ic.: l.c. fig. 6.**

TYPE. Afghanistan: Bamian (?), Koh-i-Baba, 2400 m, Koeie 2640 (holo—W, iso—C. n.v.).

AFGHANISTAN. Kabul: Paghman, Neubauer 1950: 702, Volk 921.

RANGE: Afghanistan.

Probably not specifically different from *S. heydei* Hook. f., this species only differs from it in the very small leaves and the long petioles. Although there is an apparent distributional gap between the two species, further collecting in the mountains between Paghman and the Anjuman pass will probably reveal its presence in this intervening area and with this additional material it should enable the status of the two taxa to be more thoroughly assessed.

**12. *S. ariana* Hedge sp. nov. (plate 5).**

Sect. ANASPIS (Rech. f.) Juz. Species insignis, nulli affinis.

*Suffrutex* ramosus, inferne lignosus. *Caules* 4-6 cm alti, arcuata-erecti, obtuse quadrangulares, paucinodi, simplices, toto longitudine pilis brevibus albis retrorsis eglandulosis (in toto sine pilis glandulosis) provisi. *Folia* c. 14 × 8 mm, ovata, margine integra, apice acuta, basi cuneata in petiolum c.

10 mm leviter attenuata, utrinque pilis brevibus albis antrorsis vestita, nervatura subtus pennato-reticulata vix prominente. *Folia* superiora sensim decrescentia brevius petiolata. *Axis inflorescentiae* cum bracteis et calycibus pilis albis brevibus eglandulosis pubescens. *Inflorescentia* laxiuscula, floribus paucis. *Bracteae* ovato-lanceolatae, acutae, petiolatae, calyce longioribus. *Calyx* florifer c. 4.5 mm, fructifer paulo expansus ad 6 mm, pilis appressis brevibus eglandulosis praeditus. *Corolla* coeruleo-violacea in vivo, in sicco brunneo-purpurascens, 20-25 mm longa, e basi leviter curvata tubo erecto pilis longiusculis albis pubescens. *Nuculae* ignotae. *Floret Mai.*

AFGHANISTAN. Bamian: Darrah Siakar, c. 15 km S of Doab, crevices of rocks, forming tufts, fls. pale violet, deeper along margins, 1500 m, 21 v 1962, Hedge & Wendelbo W. 3407 (holo E. iso—BG); Doab, 2000 m, Volk 466, 1741; Shibar to Doshi, crevices in limestone cliff, Furse 5873; Ajar valley, W of Doab, fls. bluish violet with white on lip, Hedge & Wendelbo W. 4108, Rechinger 16606. Maymana: Darrah Zang near Belceragh, 1400 m, Hedge & Wendelbo W. 3718, Lindberg 1959: 547.

RANGE: Afghanistan (C and NW).

*S. ariana* is a uniform species characterised by the tuft-forming habit, the short flowering stems, the long-petiolate, entire, cuneate leaves, the entirely eglandular indumentum and the bluish-violet corollas. The combination of these characters give it an isolated position in the section. The specimens cited all come from two areas—around Doab or the Darrah Zang; these two localities both on the north side of the Hindu Kush are geographically quite widely separated but the absence of specimens from the intervening region is most probably a result of under-collecting.

### 13. *S. ghorana* Hedge sp. nov. (plate 6).

Sect. ANASPIS (Rech. f.) Juz. Combinatione characterum sequentium distinctus: foliis subglabris subintegris, caulibus inferne subglabris superne glandulosis, petiolis brevibus, calycibus magnis.

*Caudex* crassus lignosus, caulis pluribus. *Caules* simplices 10-16 cm alti, arcuati-erecti, inferne obtuse, superne acute quadrangulares, paucinodi, internodiis mediis 2-4 cm longis, inferne glabri vel pilis brevissimis eglandulosis tecti, superne dense glandulosi pilis eglandulosis patulisi et pilis glandulosis longioribus. *Folia* 10-15 × 8-10 mm, trianguli-ovata, crassa, basi cordata, apice acuta, margine subintegra vel irregulariter subcrenata, utrinque glabra vel pilis brevissimis eglandulosis perpaucis praedita, nervatura subtus vix prominente; petiolus 4-6 mm. *Folia* superiora sensim decrescentia brevius petiolata. *Axis inflorescentiae* cum bracteis et calycibus pilis longis eglandulosis et glandulosis dense glanduloso-pubescentes. *Inflorescentia* laxiuscula, 4-7 cm longa. *Bracteae* parvae ovato-lanceolatae, c. 2 mm, brevissime petiolatae, calycibus multo breviores. *Calyx* florifer c. 3 mm longus, fructifer expansus ad 5 mm. *Corolla* c. 18 mm longa, colore in vivo atroviolacea, in sicco brunneo-purpurascens, tubo c. 1 mm crassa, tenui, glandulosi-pubescentes, fere recta, horizontaliter patentia. *Nuculae* ignotae. *Floret Jun.-Jul.*

AFGHANISTAN. Ghorat: in fauibus calc. infra Parjuman (Partcheman), c. 33° 10' N, 63° 52' E, c. 1850 m, Rechinger 19022 (holo—W).



PLATE 5. Type specimen of *Scutellaria ariana* Hedge.



PLATE 6. Type specimen of *Scutellaria ghorana* Hedge.

RANGE: Afghanistan.

This interesting new species is only known from the type gathering in the west of Afghanistan. It is not closely allied to any other species in Afghanistan nor, it would appear, to any Soviet C Asiatic species. The combination of the almost glabrous leaves, the short petioles, the glandular inflorescence, and the large calyces give it an isolated position. Although *S. ghorana* has been placed in sect. *Anaspis*, it appears to be a slightly anomalous member of the section in that in the new species a small rudimentary scutellum is present whereas the main reason for recognising *Anaspis* is the absence of a scutellum.

**14. *S. stocksii* Boiss., Diagn. ser. 2, 4: 28 (1859).**

TYPE. W Pakistan: Quetta, Chehel Tun (Chiltan), Stocks 1027 (holo—G. n.v., iso—K).

AFGHANISTAN. Kabul: upper part of Tang-i-Gharu, 1800 m, Hedge & Wendelbo W. 4262, Rechinger 16918; Sher Darwasa, 1800 m, Hedge & Wendelbo W. 4301, Rechinger 16997, Gilli 3588; Kuh Qorogh, 2000 m, Rechinger 18001; Kabul to Gardez, Altimur pass (Kotal Tera), 2600 m, Lamond 2398, Rechinger 31949; Logar, Bellew 83, Volk 1732. Ghorat: Parjuman (Partcheman), 1850 m, Rechinger 19026.

W PAKISTAN. Quetta: Pil Rift, 1980 m, Lace 3881; near Quetta, 2500 m, Popov 281; Hanna, R. R. Stewart 28061. Waziristan, Shakai, Duthie.

RANGE: Afghanistan, W Pakistan.

The leaves in the type gathering are eglandular but in the majority of the specimens examined, there is, in addition to the eglandular hairs, a more or less dense capitate glandular indumentum. A fairly common rock-crevice plant within its limited range, *S. stocksii* varies relatively little in facies and characters; the flower colour is whitish-pink.

*S. leptosiphon* Nevski is a very near relative of *S. stocksii* and may not differ specifically. In distribution the two species are apparently disjunct.

**15. *S. leptosiphon* Nevski in Trud. Bot. Inst. Akad. Nauk I, 4: 324 (1937). Ic.: l.c. fig. 13.**

TYPE. Turkmen SSR: in rupibus calcareis angustiarum ad pedes montium Kuhitang prope pagum Kuhitang, Nevski 2 (LE—n.v.).

A. Indumentum glandular; corolla c. 23 mm long, tube c. 0.8 mm wide.

Afghanistan. Bamian (?): Kala Sarkari, fls. pale rose, centre deeper, 2150 m, Koelz, 13921; Binimang, 2450 m, Koelz 13882.

B. Indumentum eglandular; corolla c. 30 mm long, tube 1 mm wide.

Afghanistan. Maymana: between Maymana and Belceragh, fls. purplish lilac with white markings, 900 m, Hedge & Wendelbo W. 3679 (observed in other localities nearby).

C. Indumentum eglandular; corolla 25–30 mm long, tube 0.5 mm wide.

Afghanistan. Mazar-i-Sharif: Aq Kupruk, fls. white with purple on labellum,

750 m, Hedge & Wendelbo W. 3930, Rechinger 16301; Koh-i Elburz, Cheshma-i Shafa, fls. almost white with some pinkish-purple, 900 m, Hedge & Wendelbo W. 3858, Rechinger 16220, 16239.

**D.** Indumentum eglandular; corolla c. 40 mm long, tube 1 mm wide.

Afghanistan. Mazar-i-Sharif: Kouh Baz near Haibak, Lindberg 1959: 463.

Range of species: N Afghanistan, Pamir-Alai.

Because of the lack of material for comparison among the Soviet C Asiatic species of subgenus *Apeltanthus*, I have been unable to reach a decision about the status of the specimens cited and have consequently designated them informally. On the one hand, they may represent separate subspecies or even species but on the other, further gatherings might reveal so many intermediates that in reality, only one species with local varieties is involved. Further gatherings in N Afghanistan, together with study of the Soviet representatives, are needed before a definite decision can be reached.

**SIDERITIS** L., Sp. Plant. 574 (1753); Gen. Plant. ed 5: 250 (1754).

**1. S. montana** L., Sp. Plant. 575 (1753). Ic.: Hegi, Ill. Fl. Mittel-europa 5, 4: 2404 (1927).

TYPE. "Hab. in Oriente?"

AFGHANISTAN. Qataghan: Andarab Tal, Darrah-i-Kasan, NE of Deh-Salah, 1800 m, Podlech 11687. Bamian: Lorinj, 2450 m, Koelz 13697. Kabul: Kabul, W of town, 1800 m, Hedge & Wendelbo W. 3234; Arbarb, 2150 m, Chaworth-Musters; Paghman, Neubauer 718. Ghazni: Sang-i Masha, 2500 m, Rechinger 17448.

RANGE: Afghanistan, W Pakistan, C and SW Asia, Europe.

Although a specimen has been seen from the Poonch River in Kashmir, there are no other records east of Afghanistan.

The uppermost bracts in the cited specimens are green and not yellow as is often the case in specimens from further west.

**STACHYOPSIS** M. Pop. & Vved. in Trud. Turk. Nauch. Obshch. 1: 120 (1923).

I. Leaf margins subentire or irregularly crenate

1. *S. maleolens* (Rech. f.) Hedge

+ Leaf margins deeply serrate 2. *S. oblongata* (Schrenk) M. Pop. & Vved.

**1. S. maleolens** (Rech. f.) Hedge comb. nov. Ic.: Biol. Skr. 8, 1: fig. 36, 37d (1954) (sub *Stachys maleolens*).

Syn.: *Stachys maleolens* Rech. f. in Biol. Skr. 8, 1: 60 (1954).

TYPE. Afghanistan. Nuristan: Khash district, 3200 m, Koelz 13014 (holo—W, iso-BPI—n.v.).

RANGE: NE Afghanistan.

Only known from the inadequate type gathering, *S. maleolens* is doubtfully different from *S. oblongata*.

**2. *S. oblongata*** (Schrenk) M. Pop. & Vved. in Trud. Turk. Nauch. Obshch. 1: 121 (1923).

Syn.: *Phlomis oblongata* Schrenk in Fisch. & C. A. Meyer, Enum. Pl. Nov. I, 29: 1841.

*Leonurus dschungaricus* Rgl., Trud. Bot. Sada 6: 367 (1879).

TYPE. Tian Shan "in vallis graminosis montium Dschillkaragai," Schrenk (LE—n.v.).

AFGHANISTAN. Paktia: Mt. Sikaram, not uncommon in mosses above 3350 m, Aitchison 817. (as *Stachys* sp. in Journ. Linn. Soc. Bot. 18: 88, 1880).

RANGE: Afghanistan, Syr-Darya, Dzungaro-Tarbagatai, Tian Shan, Pamir-Alai.

This species was until recently not known outside Soviet C Asia. In addition to the very interesting record from Sikaram, two gatherings from the Kaghan valley in W Pakistan have been seen: Kaghan, Saiful Maluk, Zia al Hassan 22725 (BM); between Balakot and Babusar pass, ann. 1954, Abel s.n. (BM). Very few Soviet specimens have been available for comparison but there is no apparent specific difference between them and those cited.

**STACHYS** L., Sp. Plant. 580 (1753); Gen. Plant. ed. 5: 253 (1754).

- |   |  |
|---|--|
| 1. Stem and leaves with a dense floccose indumentum . . . . .                                       | 2                                      |
| + Stem and leaves tomentose or villous, never floccose . . . . .                                    | 3                                      |
| 2. Leaves sessile, rounded at base, oblong; corolla c. 5 mm, scarcely exserted from calyx . . . . . | 1. <i>S. parviflora</i> Benth.         |
| + Leaves petiolate, cordate, ovate; corolla 10–14 mm, exserted from calyx . . . . .                 | 2. <i>S. floccosa</i> Benth.           |
| 3. Annual; leaf indumentum of scattered simple hairs . . . . .                                      | 6. <i>S. arvensis</i> L.               |
| + Perennial; leaf indumentum thick, with simple or stellate hairs . . . . .                         | 4                                      |
| 4. Verticils 2-flowered; leaves linear-oblong; indumentum stellate . . . . .                        | 5. <i>S. trinervis</i> Aitch. & Hemsl. |
| + Verticils several-flowered; leaves oblong or ovate; indumentum of simple hairs . . . . .          | 5                                      |
| 5. Leaves oblong; calyx teeth recurved . . . . .  | 4. <i>S. setifera</i> C.A.M.           |
| + Leaves ovate; calyx teeth straight . . . . .  | 3. <i>S. sericea</i> [Wall. ex] Benth. |

**1. *S. parviflora*** Benth. in DC., Prodr. 12: 490 (1848).

Syn.: *Phlomidoschema parviflorum* (Benth.) Vved. in Not. Syst. Leningrad 9: 54 (1941).

SYNTYPES. Afghanistan, in regno cabulico, Griffith (holo—K). Kashmir (?), prope Drumtour, Falconer.

AFGHANISTAN. Maymana: c. 30 km W of Maymana, 500 m, Hedge & Wendelbo W. 3649. Herat: Kala Nao, 1000 m, Amsel s.n.; Sauzak, Koeie 2192. Mazar-i-Sharif: inter Cheshme Shafa et Aq Kupruk, 900 m, Rechinger 16289; Haibak Frey 484. Qataghan: Khost-o-Fereng, 1500 m, Podlech 11957. Kandahar:

near Kandahar, 1000 m, *Koeie* 2152. Ghorat: inter Qala Ahangaran et Qala Sharak, 2500 m, *Rechinger* 18846. Paktia: inter Dre Kalla et Qasim Khel, *Rechinger* 32305. Kabul: Koh-i Asamai, 1900 m, *Hedge & Wendelbo* W. 3121. Bamian: Band-e Amir, 2900 m, *Hedge & Wendelbo* W. 4764; inter Bulola et jugum Shibar, *Rechinger* 16832. Parvan: Panshir valley, N of Dasht-e Rewat, 2500 m, *Podlech* 12253.

W PAKISTAN. Quetta: Quetta to Chaman, 1800 m, *Lamond* 1033; montes Sulaiman, Mekhtar, *Rechinger* 29779. Peshawar: in jugo Landi Kotal (Khyber Pass), *Rechinger* 30303. Kurram: Parachinar, 1500 m, *Lamond* 1879. Waziristan: Wana, *Duthie* 15657. Swat: Mingora, *Ali* 25980.

RANGE: Afghanistan, W Pakistan, Pamir-Alai, Punjab.

A very distinct species recognised by the very small (c. 5 mm) reddish-purple corollas and shrubby habit. The leaf indumentum varies between densely floccose on both surfaces to floccose beneath and subglabrous green above. Vvedensky recognised it as a separate genus on account of the included stamens.

## 2. *S. floccosa* Benth., Lab. Gen. et Sp. 739 (1835).

TYPE. Kashmir: Hirpour, *Jacquemont* (K).

AFGHANISTAN. Paktia: Jaji, Ali Khel to Peiwar Kotal, 2500 m, *Lamond* 2500, *Rechinger* 32216. Kabul: between Sarobi and Gulbahar, 3100 m, *Gilli* 3597. Nangarhar: N of Basarak, 2450 m, *Gilli* 3596; Najil, *Koelz* 11628.

W PAKISTAN. Kurram: Shalizan, *Aitchison* 695. Swat: inter Madyan et Kalam, 1700 m, *Rechinger* 19372; Kalam, *Rechinger* 19419. Chitral: Jingoret, *Toppin* 779; Dir, *Harriss* 16544.

RANGE: E Afghanistan, Chitral, Swat, Kurram valley, Kashmir.

Variable in the density of indumentum and the size of the calyx. The specimen which was provisionally assigned to *S. hissarica* Rgl. in *Symbolae Afghanicae* (Biol. Skr. 8, 1: 60, 1954) is *S. floccosa* Benth.

## 3. *S. sericea* [Wall. ex] Benth. in Wall., Pl. As. Rar. 1: 64 (1830).

TYPE. Kamaon, *Wallich* 2077.

AFGHANISTAN. E: Khelenmargh, 3500 m, *Neubauer* s.n.

W PAKISTAN. Swat: Kalam, *R. R. Stewart* 24693.

RANGE: NE Afghanistan, Gilgit, Swat, Hazara, Kashmir, Punjab, Nepal, Bhutan.

A common species in Nepal and Bhutan reaching its western extremity in Afghanistan.

## 4. *S. setifera* C.A.M., Verzeich. 94 (1831) s.l.

TYPE. Talish, prope pagum Swant, *C. A. Meyer* (LE-n.v.).

AFGHANISTAN. Maymana: Belceragh, Darrah Belceragh, 1200 m, Hedge & Wendelbo W. 3771. Badakshan: Jurm, Koelz 12971. Mazar-i Sharif (?): Mak, Koelz 14072. Kabul: Arbarp, Chaworth-Musters s.n.; Hay 217.

RANGE: Afghanistan, Tian Shan, Pamir-Alai, Iran, Caucasus, Turkey.

Gandoger (Bull. Soc. Bot. France 65: 68, 1918) gave a key, without fuller descriptions, to several species which he split off from *S. setifera*. One of these, which he called *S. bornmülleri* Gand.\* (based on Bornmüller 4298 from Kerman, S. Persia) agrees with some of the cited Afghanistan specimens (e.g. the two Koelz numbers), but its right to specific status is doubtful. The impression formed, from examination of a fairly wide range of material, is that *S. bornmülleri* and several other of Gandoger's 'splits' are environmental forms that occur throughout the species range. But more detailed investigation is needed to determine their worth.

**5. *S. trinervis* Aitch. & Hemsl. in Trans. Linn. Soc. ser. 2, 3: 97 (1888). Ic.: l.c. t. 43.**

TYPE. Afghanistan. Herat: Hari-rud valley, 10 v 1885, Aitchison 157 (holo—K).

AFGHANISTAN. Herat: Herat, Amsel s.n.; N of Sauzak, 1600 m, Koeie 3909; N of Herat, 1200 m, Koeie 4068. Farah: Jija, 1300 m, Koeie 3592. Maymana: between Belceragh and Maymana, 1000 m, Hedge & Wendelbo W. 3784.

RANGE: NW Afghanistan, Turcomania, NE Iran.

This species is easily recognised by the shrubby habit, the stellate indumentum, the whitish stems and the white or lilac-white corollas. Although Aitchison mentioned in his field notes that it grew up to 4 feet in height, subsequent gatherings are much smaller.

**6. *S. arvensis* L., Sp. Plant. ed. 2: 814 (1762).**

TYPE: "Hab. in Europae arvensis" (LINN.).

AFGHANISTAN. Kandahar: Pirzada, 1000 m, Koeie 3384.

RANGE: Europe, N Africa, and adventive elsewhere.

Probably an introduced weed in Afghanistan.

**TEUCRIUM L., Sp. Plant. 562 (1753); Gen. Plant. ed. 5: 247 (1754).**

- |  |
|--|
| 1. Leaves ovate, base often subcordate, 4–7 cm long, petiole 0·5–2 cm;<br>calyx teeth unequal . . . . . 1. <i>T. royleanum</i> [Wall. ex] Benth.<br>+ Leaves elliptic to obovate, base cuneate or rounded, 0·5–2 (–5) cm long,<br>$\pm$ sessile; calyx teeth subequal . . . . . 2<br>2. Inflorescence in axillary whorls, flowers pedicellate . . . . . 2. <i>T. scordium</i> L.<br>+ Inflorescence terminal, flowers $\pm$ sessile . . . . . 3<br>3. Calyx indumentum dense, woolly-tomentose; inflorescence branched . . . . . 3. <i>T. polium</i> L.<br>+ Calyx indumentum usually sparse; inflorescence in solitary spikes or<br>capitulae . . . . . 4. <i>T. stocksionum</i> Boiss. |
|--|

\* Antedated by *S. bornmülleri* Hand.-Mazz. in Ann. Nathist. Hofmus. Wien 27: 414 (1913).

**1. T. royleanum** [Wall. ex] Benth. in Wall., Pl. As. Rar. 1: 58 (1830). Ic.: Biol. Skr. 8, 1: fig. 1, 2 (1954) (sub. *T. edelbergii*).

Syn.: *T. edelbergii* Rech. f. in Biol. Skr. 8, 1: 13 (1954).

TYPE. India, Simla, "hab. in monte Choor" Royle.

AFGHANISTAN. Nuristan: Vaigel, 1500 m, *Edelberg* 887 (type of *T. edelbergii*); Darimtal ab Ort Darim, 1900–2400 m, *Neubauer* 51/1024; Aschpi-Pass, *Neubauer* 51/1046; Barikot to Kamdesh, 900 m, *Gilli* 3626.

W PAKISTAN. Chitral: Drosh, *Toppin* 328; Nirga, *Harriss* 16537. Swat: Khawazakheila to Shangla, *Rechinger* 30608, *Lamond* 1701; Madyan to Kolaila, *Rechinger* 30699. Kurram: Shalizan, Shendtoi, *Aitchison* 615.

RANGE: Afghanistan, W Pakistan, Kashmir eastwards to Nepal.

**2. T. scordium** L., Sp. Plant. 565 (1753).

Examination of material throughout the entire range of the species has made it clear that three varieties can be recognised in our area:

- |  |   |
|--|---|
| a. Indumentum of very short hairs, fairly dense or subglabrous . . . . . | var. <i>glabrescens</i> (Murata) Hedge & Lamond |
| + Indumentum of longer, spreading silky hairs . . . . .                  | b   |
| b. Pedicels 1–3 (–4) mm . . . . .  | var. <i>scordium</i>                            |
| + Pedicels 4–10 (–13) mm . . . . .                                       | var. <i>serratum</i> (Benth.) Hedge & Lamond    |

var. ***scordium***.

TYPE. "Hab. in Europae paludosis" (LINN.—photo!).

AFGHANISTAN. Kabul: Kabul, *Collett* 129; Kartetschar to Aliabad 1780 m, *Gilli* 3629.

W PAKISTAN. Kurram, *Aitchison* 449.

RANGE: Afghanistan, W Pakistan, Turkestan, SW Asia, Europe.

var. ***serratum*** (Benth.) Hedge & Lamond **comb. et stat. nov.**

Syn.: *T. serratum* Benth. in DC., Prodr. 12: 586 (1848).

TYPE. "in regno cabulico, *Griffith*".

AFGHANISTAN. Qataghan: Pol-i Khomri, *Neubauer* 228. Parvan: Salang Pass, 80 km from Kabul, 1700 m, *Lamond* 2042; Panjir, above Gulbahar, 1650 m, *Podlech* 12043; Ghorband, 1700 m, *Koeie* 2777. Kabul: near Istalif, 1900 m, *Gilli* 3631; Tang-e Gharu, 1400–1800 m, *Rechinger* 16936, *Hedge* & *Wendelbo* W. 4270; Bothhak, *Neubauer* 359; Tschardeh to Logar, 1880 m, *Gilli* 3630. Ghazni: Sangi-i Mash, 2500 m, *Rechinger* 17479; Sardalu, W of Qarabagh, 2300–2500 m, *Rechinger* 17333. Kandahar: Ordouboulaq, c 125 km N of Kandahar, *Lindberg* 933; SE of Girishk, 400 m, *Koeie* 2144.

W PAKISTAN. Kurram: Do-shakh, *Aitchison* 771. Quetta: Quetta, *Crookshank* 576.

RANGE: E Afghanistan, W Pakistan.

With the material now available it is clear that *T. serratum* cannot be maintained as a species separate from *T. scordium*. Although many specimens e.g. Rechinger 17479 or Hedge & Wendelbo W. 4270 have obviously larger calyces and acutely serrated leaves, the characters used to distinguish the species *T. serratum*, intermediates are found throughout the species range.

**var. *glabrescens*** (Murata) Hedge & Lamond comb. nov.

Syn.: *T. serratum* Benth. var. *glabrescens* Murata in Acta Phytotax. Geobot. 17: 75 (1958).

*T. serratum* sensu Prain in Journ. As. Soc. Beng. 59, 2: 317 (1890) and Mukerjee in Rec. Bot. Surv. Ind. 14: 216 (1940) non Benth.

TYPE. Afghanistan. Nuristan: between Voma and Trokikorl, *Kitamura*, (KYO—n.v.).

AFGHANISTAN. Nuristan: Kandai to Chigha Serai, 1300 m, Rechinger 32437, Lamond 2540; Nishei, Edelberg 815.

W PAKISTAN. Chitral: Giles 355, Toppin 320; Droshe, Harriss 16519; Gahirat, 1300 m, Bowes Lyon 711. Gilgit?: N of Hindu Kush, Giles. Peshawar: Khyber Pass, 650–900 m, Lamond 1617.

RANGE: Afghanistan (Nuristan), NW Pakistan.

These plants from Nuristan and the NW Himalayas clearly differ from the other varieties in the very short indumentum, the somewhat remote whorls and the slender habit. The descriptions given and the specimens cited by Prain (l.c.) and Mukerjee (l.c.) under *T. serratum* do not agree with the Griffith type which has long, spreading silky hairs, and they are referable to var. *glabrescens*. No obvious intermediates have been seen between var. *glabrescens* and the other two varieties and further collecting may prove that it warrants a higher rank.

### 3. *T. polium* L. Sp. Plant. 566 (1753).

TYPE. "Hab. in Italia, Hispania, Lusitania, Narbona" (LINN—photo!).

IRAN. Khorasan: Aitchison 791.

AFGHANISTAN. Farah: Jija 900 m, Koeie 3373, Lindberg 1962:109. Girishk: 1000 m, Koeie 2149.

RANGE: Afghanistan, SW Asia, Europe, N Africa.

The cited Afghan gatherings show a considerable eastern extension of the species range. Previously it was not recorded east of NE Iran and the Kopet Dagh.

### 4. *T. stocksianum* Boiss. Diagn. ser. 2, 4: 58 (1859).

Study of fairly abundant material of *T. stocksianum* and *T. incanum* Aitch. & Hemsl. has shown that they can only be separated by an indumentum

difference and that, with the material now available, the most logical treatment is the recognition of one species with three distinct varieties.

- a. Indumentum on stem and leaves of stiff, spreading hairs  
var. *patulum* Hedge & Lamond
- + Indumentum on stem and leaves of short, crisp, adpressed hairs b
- b. Indumentum on calyx, stem and leaves all similar, crisp, adpressed and curling var. *stocksianum*
- + Calyx teeth with long straight hairs var. *incanum* (Aitch. & Hemsl.) Hedge & Lamond

#### **var. *stocksianum***

TYPE. W Pakistan. "Hab. in ditione Beloutschistan superiori ad cacumen colli Hurbab in montibus Kala (Hala), 1520 m," Stocks (K—p.p.).

W PAKISTAN. Waziristan: Barwand 1220 m, *Harsukh* 15700; 1060 m, J.L. Stewart 124. Makran: Hoshab, *Rechinger* 28011, *Lamond* 521; Awaran to Turbat, 100–200 m *Rechinger* 27762.

RANGE: W Pakistan (Baluchistan), SE Iran.

Study of the isotype material at Kew showed that two distinct varieties are present on the sheets. In Boissier's original description of *T. stocksianum* he compared it with the Arabian *T. leucocladum* Boiss. in indumentum and leaf form. Most of the specimens on the two type sheets (numbered Stocks 810) at Kew match this description and the remainder are referable to var. *patulum*. It is possible that they were collected in separate localities, perhaps in different years, but the labels are somewhat confusing.

The character of ovate-rotund capitulae mentioned by Boissier appears to be one of immaturity. The inflorescence elongates with age.

#### **var. *patulum* Hedge & Lamond var. nov.**

A var. *stocksiano* indumento patulo rigido differt.

TYPE. W Pakistan. Baluchistan: Quetta; in parte inferiore faucium Torkhan supra Harnai, 900 m, 14 v 1965, *Rechinger* 29476 (holo—W).

W PAKISTAN. Quetta: Chiltan ?, Stocks 810 p.p.; Quetta, Koeie 3374, *Hanif* 17, Popov 184; Fort Sandeman, *Harsukh* 20629; Zandra, Ziarat, *Jafri* & *Akhar* 2199, *Lace* 3846; Loralai to Sanjawi, 15–1600 m, *Lamond* 1228, *Rechinger* 29438; Torkhan Pass, *Lamond* 1247, *Rechinger* 29457; Wam Tangi, *Rechinger* 29566, *Lace*; 38 km E of Gumbaz, 1050 m, *Rechinger* 29679. Dera Ghazi Khan: Sulaiman Mts., Fort Munro, 1600–1800 m, *Rechinger* 29737.

RANGE: W Pakistan (Quetta division).

It is difficult to establish the provenance of the Stocks specimen of this variety. Mounted on the same sheet as the type variety is a label annotated Chihil Tun (Chiltan) and this may refer to our plant. Around Quetta the geographical areas of var. *patulum* and var. *stocksianum* overlap and an intermediate state is found in *Hanif* 17. The records of *T. stocksianum* of recent authors probably refer to var. *patulum* and not to the type variety.

var. *incanum* (Aitch. & Hemsl.) Hedge & Lamond comb. et stat. nov.

Syn.: *T. incanum* Aitch. & Hemsl. in Journ. Linn. Soc. 19: 184 (1882).

*T. toppinii* Dunn & Williams in Kew Bull. 1921: 122 (1921).

TYPE. W Pakistan. Kurram, between Thal and Badish-Khel growing gregariously on the low conglomerate hills at an altitude of not above 1050 m, *Aitchison* 444 (holo—K).

AFGHANISTAN. Parvan: Bagramital, c. 2000 m, *Neubauer* 4552. Nangarhar: Kandai, *Rechinger* 32458; Jalalabad to Chigha Serai, 750 m, *Lamond* 2535, *Rechinger* 32402; Barikot to Kamdesh, *Gilli* 3632; Vaigel, *Edelberg* 888; Barikot, *Edelberg* 1795 (the last two cited under *T. stocksianum* in Biol Skr. 8, 1: 15, 1954).

W PAKISTAN. Chitral: *Toppin* 313 (type of *T. toppinii*). Swat: Mingora, 900 m, *R. R. Stewart* 24756; Barikot to Mingora, *Rechinger* 30497; near Saidu Sharif, 1050 m, *Rodin* 5404. Peshawar: Khyber Pass, *Burtt* 584, *Lamond* 1601, *Rechinger* 30317, *Lowndes* 689. Kohat: c. 20 km W of Kohat, *Burtt* 706, *Lamond* 1551, *Rechinger* 30200. Kurram: Amal Kot to Sadda, c 15 km from Parachinar, 1400 m, *Lamond* 1895, *Rechinger* 30975.

RANGE: E Afghanistan, W Pakistan (NW Frontier Provinces), Punjab.

Not previously recorded outwith the NW Himalayan-Punjab region, the extension of the range of this variety to Bagram and the Nuristan area is not surprising. In the original description Aitchison & Hemsl distinguished *T. incanum* from *T. stocksianum* on the larger flowers and canescent indumentum. A complete range of corolla size is found throughout the three varieties. The indumentum character suggests that comparison was being made with var. *patulum*. *Lamond* 2535 and *Rechinger* 32402 are not such densely canescent plants as the other cited specimens.

#### THUSPEINANTA Durand, Ind. 703 (1888).

Syn.: *Tapeinanthus* [Boiss. ex] Benth. in DC., Prodr. 12: 436 (1848) non Herbert (1837).

1. Indumentum of glandular hairs; corolla tube clearly exserted from calyx; calyx teeth broad-triangular . . . . . 1. *Th. persica* (Benth.) Briq.
- + Indumentum of white-hispid, eglandular hairs; corolla tube ± equalling calyx; calyx teeth triangular-lanceolate . . . . . 2. *Th. brahuica* (Benth.) Briq.

1. *Th. persica* (Benth.) Briq. in Pflanzenfam. 4, 3a: 229 (1896). Ic.: Trans. Linn. Soc. Bot. 3: t. 42, fig. 1-6 (1888) (*sub Chamaesphacos persicus*).

Syn.: *Tapeinanthus persicus* [Boiss. ex] Benth. in DC, Prodr. 12: 436 (1848). *Chamaesphacos persicus* (Benth.) Aitch. & Hemsl. in Trans. Linn. Soc. Bot. 3: 97 (1888).

TYPE. Persia. "Hab. in arenosis prope Tehran" *Kotschy* 18 (G—n.v.).

PERSIA/AFGHANISTAN. Meshed to Herat, 914 m, *Furse* 5322.

RANGE: Afghanistan, Turcomania, Iran, Iraq.

**2. Th. brahuica** (Boiss.) Briq. in Pflanzenfam. 4, 3a: 229 (1896). Ic.: Trans. Linn. Soc. Bot. 3: t. 42, fig. 7-11 (1888) (sub *Chamaesphacos afghanicus*).

Syn.: *Tapeinanthus brahuicus* Boiss., Diagn. ser 2, 4: 29 (1859).

*Chamaesphacos brahuicus* (Boiss.) Aitch. & Hemsl. in Trans. Linn. Soc. Bot. 3: 97 (1888).

*Ch. afghanicus* Aitch. & Hemsl. in Trans. Linn. Soc. Bot. 3: 97 (1888).

TYPE. W Pakistan. "Hab. in ditione Beloutschistan ubi detexit cl. et beatus" Stocks. (holo—G, iso—K sub no. 940).

PERSIA. Khorasan, Aitchison 626.

AFGHANISTAN. Herat: N of Herat, 900-1100 m, *Koeie* 4059; Hari Rud, Aitchison 183 (type of *Chamaesphacos afghanicus*). Farah: Jija, 1200 m, *Koelz* 3574. Kabul: Kabul, Kuh-i-Nanagak, S of Gulbagh, 1830 m, Hedge & Wendelbo W. 3192; in jugi Lataband, 1800-2100 m, Rechinger 31087.

W PAKISTAN. Quetta: Pishin, *Lace*; Yaro near Bostan, c. 40 km from Quetta on road to Chaman, 1450 m, *Lamond* 988, Rechinger 28923. Baluchistan: Kalat, Panjgur to Surab, Basima near Jangal, 1350 m, *Lamond* 656, Rechinger 28302; Kalat, weed in field, *Jafri* & *Akhar* 1965.

RANGE: Afghanistan, W Pakistan, Iran.

There is no morphological difference to warrant keeping Aitchison 183 as the separate species *Chamaesphacos afghanicus*. It was collected under shrubs and in wet soil and this may account for the habit and indumentum differences. In all other respects it is a typical plant of *Th. brahuica*.

#### THYMUS L., Sp. Plant. 590 (1753); Gen. Plant. ed 5: 257 (1754).

This account is very provisional. As additional material becomes available for study, the number of variants increases and the problems multiply. At the present time, it appears that two main taxa are involved: the first from the NW of the country and the second from the E and NE of the country. No thymes have been collected in any other part of Afghanistan.

- |   |                               |
|---|-------------------------------|
| 1. Stems subglabrous without prostrate sterile shoots; calyx 7-8 mm; corolla c 11 mm.   | 1. <i>T. koeieanus</i> Ronn.  |
| + Stems with an obvious indumentum and with prostrate sterile shoots; calyx 4-5 mm; corolla 5-9 mm ( <i>T. serpyllum</i> L. agg.) | 2                             |
| 2. Leaves elliptic to linear  | 2. <i>T. "sp. nov."</i>       |
| + Leaves obovate  | 3. <i>T. afghanicus</i> Ronn. |

#### 1. *T. koeieanus* Ronn. in Biol. Skr. 8, 1: 78 (1954). Ic.: l.c. fig. 50.

TYPE. Afghanistan: Sauzak, NW of Herat, 2500 m, 10 vi 1948, *Koeie* (holo—W, iso—E, C—n.v.).

AFGHANISTAN. Herat: Kotal Salzak, *Neubauer* 3504, *Lindberg* 644.

RANGE: NW Afghanistan.

*T. koeieanus* is allied to the polymorphic *T. kotschyana* Boiss. & Hohen.

from Iran but apparently differs in the sparse indumentum on the stems and the non-ciliate leaf bases.

## 2. T. "sp. nov."

AFGHANISTAN. Paktia: Peiwar Kotal, 2700 m, *Rechinger* 32226; Ali Khel to Peiwar Kotal, 2500 m, *Lamond* 2480.

W PAKISTAN. Kurram: Parachinar, 1500 m, *Lamond* 1871. Quetta: Ziarat, 2100 m, *Rechinger* 29370, *Lace* 3970; Shinghar, 50 km N Fort Sandeman, 2050 m, *Lamond* 1477; mountain above Quetta, 3000 m, *Popov* 326.

RANGE: E Afghanistan, W Pakistan.

This taxon is certainly closely related to *T. afghanicus* but can apparently be separated on the narrow, often linear, uni-nerved leaves. Otherwise there are no clear morphological differences between them although their geographic distributions are separate: *T. "sp. nov."* from the Quetta-Kurram region and *T. afghanicus* from Nuristan, Swat and Chitral. I have deferred giving the former taxon a formal name and description as Dr. Klokov is still working on the Asiatic species and has already given the *Lace* sheet, cited above, an as yet unpublished name.

## 3. *T. afghanicus* Ronn. in Biol. Skr. 8, 1: 77 (1954). Ic.: l.c. fig. 48.

Syn.: *T. pseudalbanus* Ronn. and var. *angustifrons* Ronn. l.c. 79.

TYPE. Afghanistan: Nuristan, Khash district, 3050 m, *Koelz* 12981 (holo—W, iso—BPI—n.v.).

AFGHANISTAN. Nuristan: Pashki, 2300 m, *Edelberg* 912; Wanagul Pass, 4500 m, *Thesiger* 1564; Weran, 3800 m, *Edelberg* 1251 (as *T. coriifolius* Ronn. in Biol. Skr. 8, 1: 78, 1954); Kamdesch, 2800 m, *Gilli* 3449; Urura Pass, 3000 m, *Neubauer* 642. Parvan: S side Salang Pass, 2700–3000 m, *Rechinger* 31567; between Gulbahar and Sarobi, 2580 m, *Gilli* 3451; Bagrami, Nedjerau, 2600 m, *Neubauer* 315. Qataghan: Khost-o-Fereng, 2200 m, *Podlech* 11937; Andarab valley, 2700 m, *Podlech* 11056. Badakshan: Wakhan, Sarhad, 2900–4000 m, *Roemer* 329.

W PAKISTAN. Swat: Bahrein, 2200 m, *Rechinger* 19472; Jabba Valley, 1900 m, *Lamond* 1787. Chitral: Lowari Pass, *Harriss* 16484; below Zapotli, 3500 m, *Wendelbo* s.n.; Oihor Gol, *Bowes Lyon* 852.

RANGE: NE and E Afghanistan, Chitral, Swat.

When the late Dr. Ronniger worked over the *Thymus* material from Afghanistan in the early 1950's, he was dealing with a limited number of specimens. Now there is a fairly large collection of *Thymus* from Afghanistan and W Pakistan which has necessitated a re-appraisal of Ronniger's treatment in *Symbolae Afghanicae*. The situation now is clearly such that either one recognises an unending number of ill-defined taxa (as has already happened in Klokov's treatment of *Thymus* in the Soviet Union) or else one admits that such a classification is hopelessly artificial and that for general purposes easily circumscribed and defined taxa are the only practical solution. In this case, I find that

there is such a degree of polymorphism and intergradation among the taxa already recorded that in fact only one species can be recognised. It is an undershrub with long prostrate sterile shoots and erect or ascending flowering stems; the leaves are elliptic-ovate to obovate with 2 or 3 prominent lateral veins below, ciliate at base or not, otherwise glabrous; the stems are goniotrichous or holotrichous with retrorse or spreading hairs; the calyx has long spreading hairs or is sub-glabrous except for the ciliate upper teeth. There is little doubt that many of its facets closely approach variants of the European *T. serpyllum* L. and although I have designated the Afghan plant as *T. aghanicus* Ronn., I regard this as a temporary expedient, pending a more thorough investigation of the problem. A fairly cursory examination of material from Kashmir along the Himalaya to N China suggests that this is at least the same macro-species as the Afghan one and that to call it *T. serpyllum* L. subsp. *quinquecostatus* (Čelak.) Kitamura (Plants of W Pakistan and Afghanistan 132, 1964) is not unwarranted.

**ZATARIA** Boiss., Diagn. ser. 1, 5: 18 (1844).

**1. *Z. multiflora*** Boiss., l.c. Ic.: Hook., Ic. Pl. 15: t. 1428 (1883).

Syn.: *Z. bracteata* Boiss., Diagn. ser. 2, 4: 12 (1859).

*Z. multiflora* Boiss. var. *elatior* Boiss., Fl. Orient. 4: 562 (1879).

TYPE. "Hab. in Persia australi" Aucher 5192 (holo—G—n.v., iso—K).

AFGHANISTAN. Kabul: Tang-e Gharu, 1100–1300 m, Rechinger 16972; 15 km W of Sarobi, 1200 m, Hedge & Wendelbo W. 4286. Nangarhar: Otipore, Griffith (type of *Z. bracteata*); Ningalam to Darim, 13–1900 m, Neubauer 948; Pol-i-Gawardesch, 830 m, Gilli 3454.

W PAKISTAN. Gilgit: Giles. Chitral: Mirkandi, Harriss 16559. Quetta: Chiltan, 1600 m, Lamond 1095, Rechinger 29096, Stocks 1064; Pil Rift, 1670 m, Lace 3936; near Duzan, Bolan Pass, Jafri 2958.

RANGE: Afghanistan, W Pakistan, Iran, Oman.

Only a few of all the specimens examined showed normal flowers. Most were male-sterile, either with stamens present but devoid of any trace of pollen or else with stunted stamens. At the eastern end of the range some plants are apparently female sterile, a very unusual occurrence in the Labiateae. *Zataria* is easily recognised on herbarium specimens by the small round buds in the leaf axils which are densely covered in white hairs.

**ZIZIPHORA** L., Sp. Plant. 21 (1753); Gen. Plant. ed. 5: 13 (1754).

- |   |                                  |
|---|----------------------------------|
| 1. Annual; inflorescence spicate . . . . .    | 1. <i>Z. tenuior</i> L.          |
| + Perennial; inflorescence capitate . . . . . | 2. <i>Z. clinopodioides</i> Lam. |

**1. *Z. tenuior* L., Sp. Plant. 21 (1753).**

Syn.: *Faldermannia tenuior* (L.) Ter.—Chatschat. in Not. Syst. Geogr. Inst. Tbilisi 17: 75 (1953).

TYPE. "Hab. in Syria?" (LINN—photo! ex herb. Cliff?).

AFGHANISTAN. Herat: between Herat and Persian frontier, 900 m, *Furse* 5368; Kishlik, 7000 m, *Koeie* 4054. Kandahar: Farah to Shin Dand, *Koeie* 3571. Kabul: Kabul, Sher Darwasa, 2200 m, *Podlech* 10836; Kabul to Lataband, *Lamond* 1938; Sarobi, *Volk* 1889; Tang-i-Gharu, 1750 m, *Hedge & Wendelbo* W. 2773; Band-i Kharghak, 2050 m, *Rechinger* 31257. Ghazni: inter Qarabagh et Sang-i Masha, 2600 m, *Rechinger* 17389. Qataghan: Andarab valley, 2250 m, *Podlech* 11040; between Pol-i Khomri and Aybak, 900 m, *Hedge & Wendelbo* W. 3516. Badakshan: Faizabad, 1050 m, *Furse* 6229. Mazar-i-Sharif: Takht-e Rustam prope Aybak, 1200 m, *Rechinger* 16391. Bamian: Doab, 1440 m, *Hedge & Wendelbo* W. 3368.

W PAKISTAN. Quetta: foothills of Mashelagh range, 1700 m, *Lamond* 1083; Fort Sandeman to Wana, 1500 m, *Lamond* 1456; Spin Karez, *Rechinger* 29215; Quetta, *Koeie* 3382. Kalat: inter Kolpur et Mach, 900 m, *Rechinger* 28467. Kurram: Parachinar, 1500–1700 m, *Rechinger* 30909; inter Amal Kot et Sadda, 1400 m, *Rechinger* 30982. Chitral: Chitral–Mastuj track, 1520 m, *Stainton* 2413.

RANGE: Afghanistan, W Pakistan, SW and C Asia, Crimea, Balkans.

A fairly constant species, *T. tenuior* is one of the commonest annual labiates in this area.

## 2. *Z. clinopodioides* Lam., Illustr. 1: 63 (1791).

Described from C Asia (holo—P. n.v.).

The remarkable polymorphism of this species has already been discussed (Hedge in Notes R.B.G. Edinb. 23: 209–223, 1961). Consideration of the species throughout its entire range showed that despite the striking variation, only one species could be recognised. In that paper, recognition of infra-specific taxa was based on an informal classification.

Recent examination of a large quantity of Afghanistan material has shown that two main variants occur here. In habit, they are similar both having ascending or erect stems but in the extreme forms one has a villose calyx and the other has few scattered hairs on the calyx. The former corresponds with *Z. pseudodasyantha* Rech. f. (*Phyton* 3: 167, 1951—described from NE Iran, *Rechinger* 1425—holo W); the latter with *Z. afghanica* Rech. f. (*Phyton* 3: 169, 1951—described from Afghanistan, Mamakhel, *Koelz* 11527—holo W). Although the variation among the Afghanistan plants is considerably less than that of the Turkish plants and it might appear that at least varietal rank would be a satisfactory answer to the problem in our area, because of the great number of intermediates and the impression one forms of polytopic differentiation, I prefer to maintain the informal classification proposed in the cited paper.

The distribution of *Z. clinopodioides* is given in Studies in the Flora of Afghanistan: viii, fig. 1.

“*glabrata*” group. Stems procumbent or ascending, rarely more or less erect. Calyx indumentum of short hairs or long scattered hairs. Including *Z. afghanica* Rech. f.

AFGHANISTAN. Kabul: Pagham, 2600 m, *Hedge & Wendelbo* W. 4361; Band-e Kharghak, 1900 m, *Lamond* 2025a. Gardez: Safed Kuh, 23 km N Gardez, c. 3000 m, *Rechinger* 31836. Kabul: Hauz-i Mahiha, 2500 m, *Koeie* 2342, 2344.

Paktia: in jugo Peiwar Kotal, c 2700 m, *Rechinger* 32230; Khost, W of Satekandau Pass, *Lamond* 2432. Parvan: Salang Pass, S side, 2250 m, *Lamond* 2075; Salang Pass, N side, *Furse* 6612. Qataghan: Namakab valley, 1600 m, *Podlech* 11471; Andarab valley, Darrah-i Kasan, *Podlech* 11697; Khinjan valley, *Podlech* 11565. Badakshan: Faizabad, 1900 m, *Edelberg* 1362. Nagarhar: Pashki, *Edelberg* 1310; Urura Pass, 3000 m, *Neubauer* 625.

W PAKISTAN. Quetta: Ziarat, *Lace* 71; Quetta, *Popov* 315. Kurram: Parachinar, *Rechinger* 30949, *R. R. Stewart* 28063. Chitral: NE of Drosh, *Stainton* 3109.

RANGE: throughout the range of the species.

Many specimens are intermediate in the density of calyx indumentum between this group and the following one. Others are intermediate between "glabrata" group and the "rigida" group which is characterized by erect, ± tall stems and narrow oblong and lanceolate leaves; the following are examples—Afghanistan: Bamian: NW Panjao, 2900 m, *Rechinger* 18752. Ghorat: Parjuman, 1850 m, *Rechinger* 19057. Ghazni: inter Qarabagh et Sang-i Masha, 2800 m, *Rechinger* 17414. Mazar-i Sharif: Cheshma e Shafa, 500–800 m, *Rechinger* 16170.

"*tomentosa*" group. Stems erect or ascending. Calyx indumentum of long white hairs, dense. Including *Z. pseudodasyantha* Rech. f. and *Z. pamiroalaica* Juz. in Komarov, Fl. URSS 21: 668 (1954).

AFGHANISTAN. Kabul: Farza, 1850 m, *Hedge & Wendelbo* W. 3267; Guldarrah, 2000 m, *Podlech* 11625; Paghman, 2800 m, *Podlech* 11616, *Volk* 969a. Ghazni: distr. Malestan, N of Sang-i Masha, 3300 m, *Rechinger* 17595; in jugo Ghoutch Kol, 3300 m, *Rechinger* 17652. Ghorat: 12 km SW Taiwara, 2300 m, *Rechinger* 18988. Maymana: Darrah Belceragh, 1200 m, *Hedge & Wendelbo* W. 3767. Parvan: Panjshir valley, Chimar, 2800 m, *Hedge & Wendelbo* W. 5384. Bamian: Band-i Amir, 2900 m, *Hedge & Wendelbo* W. 4759; inter Bulola et jugum Shibar, *Rechinger* 16768. Qataghan: Khost-o Fereng, 2200 m, *Podlech* 11934. Badakshan: Anjuman Pass, 4050 m, *Podlech* 12345; Siau valley, 4150 m, *Podlech* 12660; Quazi Deh valley, W Wakhan, 3400 m, *Roemer* 160.

W PAKISTAN. Chitral: Barum Gol, *Wendelbo*; Tirich Gol, 3350 m, *Bowes Lyon* 1067; Rosh Gol, 3050 m, *Stainton* 2825; Vedinkot, W of Baroghil Pass, 3050 m, *Stainton* 2965.

RANGE: Afghanistan, Soviet C Asia east to Altai mts, NE Iran.

In this group, as in the previous, specimens with male sterile flowers are not infrequent.

## APPENDIX I

### ADDITIONS TO THE PREVIOUSLY PUBLISHED PARTS

#### CALAMINTHA Mill., Gard. Dict. Abr. ed. 4 (1754).

**C. rotundifolia** (Pers.) Benth. in DC., Prodr. 12: 232 (1848).

Syn.: *Acinos rotundifolia* Pers., Syn. 2: 131 (1807).

Type. "Hab. in Hispania" (Type in Herb. Richard—P—n.v.).

AFGHANISTAN. Herat, *Koeie* 4061. Qataghan: Koh-i-Ishkamish, 1300 m, *Podlech* 10599.

RANGE: Afghanistan, SW Asia, S Europe, N Africa.

The two cited Afghan records are apparently the most eastern gatherings of the species.

**ELSHOLTZIA** Willd. in *Botanisches Magazin* (ed. Roem. & Usteri) 4, 11: 3 (1790).

*E. ciliata* (Thunb.) Hylander in *Bot. Not.* 129 (1941).

Syn.: *Sideritis ciliata* Thunb., *Fl. Japon.* 245 (1784).

*Elsholtzia cristata* Willd. in *Botanisches Magazin* (ed. Roem. & Usteri) 4, 11: 5 (1790).

*E. patrinii* (Lepech.) Gärcke, *Fl. Deutsch.* ed. 4: 257 (1858).

Described from Japan.

AFGHANISTAN. Qataghan: Farkhar Valley, c. 5 km above Khanaqah-i-Warsaj, 2000 m, damp shady places, *Podlech* 12637.

RANGE: throughout the warmer parts of Asia and naturalised elsewhere.

This species has not previously been recorded from Afghanistan. Together with a few other specimens from Nepal, Tibet and the Karakoram, the *Podlech* gathering differs from most of the material of *E. ciliata* in the all over indumentum on the bracts and the long spinulose calyx teeth. Study of the variation of *E. ciliata* throughout its range is necessary before a conclusion can be reached about these apparently aberrant forms.

**EREMOSTACHYS** Bge. in *Ledeb.*, *Fl. Alt.* 2: 414 (1830).

*E. podlechii* Hedge sp. nov. (Plate 7).

Ser. *Vulnerantes* Rech. f. & Koeie. *Radix* ignota. *Caulis* c. 80 cm altus, simplex, quadrangularis, erectus, internodiis paucis valde elongatis, pilis eglandulosis arachnoideo-lanatus. *Folia* radicalia petiolis c. 13 cm longis; lamina 17 × 9–10 cm, ovato-lanceolata, basi leviter cordata, apice acuta, margine sublobato-crenata, supra pilis albis longissimis eglandulosis laxe arachnoideo-floccosa, subtus pilis eglandulosis et pilis paucis glandulosis, nervatura supra tenuiter immersa, subtus prominenter reticulato-anastomosante. *Folia* caulina 2-paria, similia sed multo minora. *Verticillastra* 7, valde remota, sessilia, multiflora, compacta. *Bracteae* numerosae, linearis-subulatae in mucronem pungentem excurrentes, calyci adpressae. *Calycis* tubus ± 14 mm longus, coriaceus, tubulosus, pilis eglandulosis numerosis et pilis brevioribus glandulosis dense praeditus, dentibus inaequalibus, brevioribus tribus in mucronem 4 mm longum, longioribus duobus in mucronem 7 mm longum attenuatis, omnibus breviter alatis. *Corolla* c. 25 mm, colore ignota, tubo breviter e calyce exerto, intra exannulata sed basi filamentorum lamellis quattuor strigoso-barbatis praedita; labium superius strigoso-barbatum; labium inferius paulo longius, trilobatum, lobo mediano 15 × 9 mm lateralibus distincte latiore. *Stamina* glabra. *Stylus* inclusus c. 16 mm, tomentosus. *Nuculae* ignotae. *Floret* Mai.

AFGHANISTAN. Qataghan (Baglan): Khinjan-Tal, 2200 m; Hänge an der Salang-Strasse, 27 v 1965, Podlech 10904. (holo—M).

RANGE: Afghanistan.

The new species has been placed in series *Vulnerantes* on account of the unequal mucronate calyx teeth, the stiff spiny bracts and the entire cordate leaves. It clearly differs from the only other species in that series, *E. vulnerans*, in the sparse indumentum on the leaves, the less dissimilar calyx teeth, the smaller corollas and the tomentose style. Although the flower colour is not clear from the dried specimen, it is clearly not the characteristic purplish-violet of *E. vulnerans*. Therefore, although *E. podlechii* fits the original description of series *Vulnerantes*, it cannot be considered as a close relative of *E. vulnerans*. There are two other features of this species that further stress its isolated taxonomic position: firstly, the absence of filamental appendages, usually present in *Eremostachys*, and the presence of four distinct plates of tissue at the base of the stamens; secondly, the unusually large middle lobe of the labellum which in width is almost as broad as the two lateral lobes together.

The finding of this distinct new species, and the recently described *E. badakschanica* Hedge, suggest that further exploration in N Afghanistan will yield other distinct novelties which will necessitate a revision of the currently accepted sub-generic divisions of *Eremostachys*.

The new species is named after Dr. Dieter Podlech of the Munich Botanic Garden, whose Afghan expedition in 1965 brought many interesting new plants to light.

**GONTSCHAROVIA** Boriss. in Not. Syst. Leningrad 15: 321 (1953).

**1. *G. popovii*** (B. Fedtsch. & Gontsch.) Boriss., l.c. 322. Ic.: l.c. 323 fig. 1.

Syn.: *Satureia popovii* B. Fedtsch. & Gontsch. in Acta Hort. Petrop. 41, 1: 117 (1929).

Several syntypes from W Tadzhikistan, *Regel* (LE—n.v.).

W PAKISTAN. Chitral: Shogor, 1900 m, Schmid 2419.

RANGE: Chitral, Kashmir, Pamir-Alai.

Borissova related *Gontscharovia* to *Mentha* in the original description of the genus but it appears to occupy a more natural position near *Satureia*.

The only other non-Soviet gathering that has been examined (Kashmir, Poonch, Ganga Choti, *Rashid Khan*—RAW) agrees well with the Chitral plant. Both appear to differ from the Soviet species in the narrower (linear-oblong in contrast to broad lanceolate) leaves and the longer anthers. They may represent a different taxon but until a range of Pamir-Alai material has been studied, they are best called *G. popovii*.

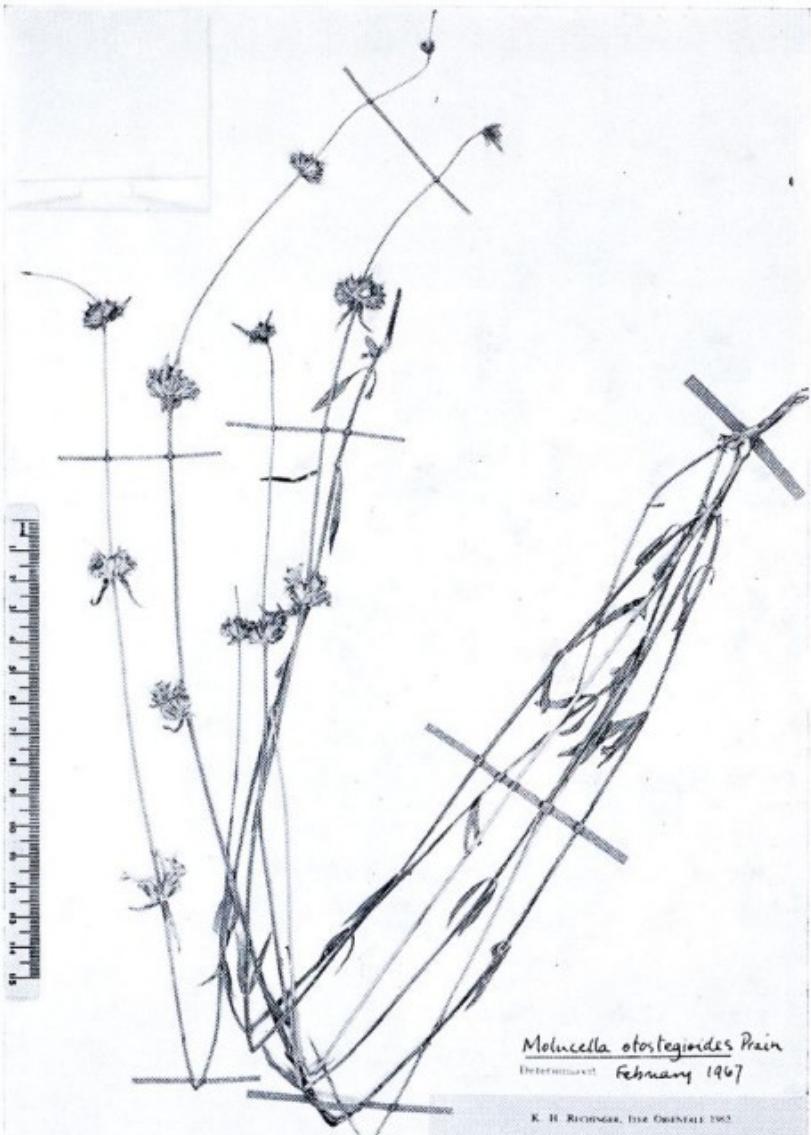
**SALVIA** L., Sp. Plant. 23 (1753); Gen. Plant. ed. 5: 15 (1754).

Since the account of this genus was published (Notes R.B.G. Edinb. 26: 407–425, 1966), two species not previously known in Afghanistan have been found. Another, *S. virgata*, previously only known from one gathering near Kabul has been collected in the north of the country.

STAATS-  
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MÜNCHEN



PLATE 7. Type specimen of *Eremostachys podlechii* Hedge. Inset: a. flower; b. calyx; c. lower lip of corolla; d. corolla opened out; e. young nutlet.



*Molucella otostegioides* Prain  
Det. February 1967

K. H. Rechinger, *Flor. Orientale* 1965

FLORA OF WEST PAKISTAN

Dara Tariq Khan; Malakai Range; Fort Shabaz to Dara Tariq Khan, c. 40 Km from Fort Shabaz between Nowshera and Mardan Dist., Cliff ledges.  
Fl. winter, shrub, c. 2 m.

Alt. c. 1700-1900

Coll. Jennifer Lamond

25th May, 1965

No. 3409

PLATE 8, Specimen of *Molucella otostegioides* Prain.

*S. virgata* Jacq., Hort. Vindob. 1: 14 (1770).

AFGHANISTAN. Parvan: Andarab valley, Darrah-i-Kasan, NE of Deh-Salah, 1800 m, *Podlech* 11664. Qataghan: Khost-o-Fereng, 2200 m, *Podlech* 11932.

RANGE: Afghanistan, C and SW Asia, S Europe.

The two new gatherings show that *S. virgata* is not an introduced weed in Afghanistan as was suggested before on the basis of the single gathering from near Kabul.

*S. nemorosa* L., Sp. Plant. ed. 2, 35 (1762) s.l.

AFGHANISTAN. Badakshan: Hazar-y Sayet (Kochka), 1900 m, Frey 102.

RANGE: Afghanistan, C and SW Asia, Europe.

Although in Pobedimova's account in Fl. URSS (21: 344-349, 1954), this species was split into *S. nemorosa* L., *S. tesquicola* Kloek. & Pobed., *S. deserta* Schang. and *S. fugax* Pobed., I prefer in the meantime to use the more general epithet.

*S. plebeia* R. Br., Prodr. Fl. Nov. Holl. 501 (1810).

AFGHANISTAN. Nuristan: Edelberg 1506, 1578 (without locality); Khudikhel, Koelz 11531; Tschaghan Serai, Kunarthal, 820 m, Gilli 3633. Nangarhar: Kandai, Rechinger 32451.

RANGE: NE Afghanistan, Pakistan, India, Himalayan region, Malaysia, China, Australia.

## APPENDIX II

### SPECIES OF DOUBTFUL GENERIC AFFINITY

*Molucella otostegioides* Prain in Journ. As. Soc. Beng. 59, 2: 311 (1890). (Plate 8).

TYPE. W Pakistan: "NW Frontier; Suleiman Range in the Zam defile leading to Waziristan, 3500 ft." J. L. Stewart (K).

W PAKISTAN. Dera Ismail Khan: Sulaiman Range; Fort Sandeman to Dera Ismail Khan, c. 60 km from Fort Sandeman, cliff ledges, fl. white, shrub of c. 50 cm, 1750-1900 m, 21 v 1965, Lamond 1489, Rechinger 29944; 80 km E of Fort Sandeman, Rechinger 29956. Waziristan: Wana, 1370 m, 8 v 1895, Duthie 15788.

RANGE: W Pakistan (Sulaiman Range).

This interesting species is anomalous in *Molucella* on account of the shrubby perennial habit and unexpanded calyx limb (see fig. 6). The other two species of the genus, *M. laevis* L. and *M. spinosa* L. are annual plants from the E Mediterranean region, both with clearly expanded calyces.

It is also anomalous in any other Labiate genus, although superficially

resembling *Ostostegia aucheri* Boiss., and there are good reasons for regarding it as a separate genus. However, a final decision on its correct position should only be made when specimens with mature nutlets are available.

The species is not keyed out in the generic key (Studies in the Flora of Afghanistan viii: 169-172).

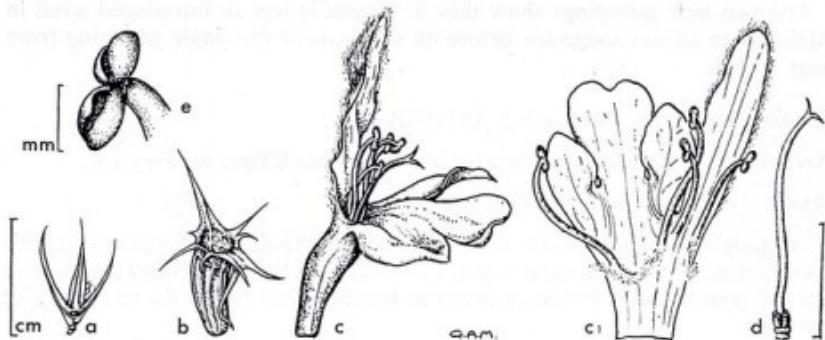


FIG. 6. *Molucella otostegioides* Prain. a, bract, b, calyx, c, corolla, c 1, corolla opened out, d, style, e anther.

### APPENDIX III

#### CHECK LIST OF THE LABIATAE OF THE AFGHANISTAN AREA

<i>Ajuga parviflora</i> Benth.		<i>Elsholzia densa</i> Benth.
„ <i>bracteosa</i> Benth.		„ <i>ciliata</i> (Thunb.) Hyland.
„ <i>chamaecistus</i> Benth.		
<i>Calamintha debilis</i> (Bge.) Benth.		<i>Eremostachys vulnerans</i> Rech. f. &
„ <i>umbrosa</i> (M. Bieb.)		Koeie
„ Fisch. & Mey.	„	<i>podlechii</i> Hedge
„ <i>vulgaris</i> (L.) Druce	„	<i>hissarica</i> Rgl.
„ <i>rotundifolia</i> (Pers.)	„	<i>ghorana</i> Rech.
Benth.	„	<i>persimilis</i> Aitch. &
		Hemsl.
<i>Chamaesphacos ilicifolius</i> Schrenk	„	<i>thyrsiflora</i> Benth.
<i>Dracocephalum paulsenii</i> Briq.	„	<i>lindbergii</i> Rech. f.
„ <i>wendelboi</i> Hedge	„	<i>laciniata</i> (L.) Bge. s.l.
„ <i>nutans</i> L.	„	<i>loasifolia</i> Benth.
„ <i>aitchisonii</i> Rech. f.	„	<i>gymnoclada</i> Rech. f.
„ <i>moldavica</i> L.	„	& Koeie
„ <i>bipinnatum</i> Rupr.	„	<i>superba</i> Benth.
„ <i>heterophyllum</i> Benth.	„	<i>acaulis</i> Rech. f.
„ <i>stamineum</i> Kar. &	„	<i>sanglechensis</i> Rech. f.
Kir.	„	<i>edelbergii</i> Rech. f.
„ <i>kafiristanicum</i> Bornm.	„	<i>bamianica</i> Rech. f.
		<i>calophyta</i> Hedge
		<i>ariana</i> Hedge

*Eremostachys*—contd.

- „ *rastagalensis* Hedge
- „ *labiosa* Bge.
- „ *vicaryi* Hook. f.
- „ *regeliana* Aitch. & Hemsl.
- „ *badakshanica* Hedge

*Gontscharovia popovii* (B. Fedtsch. & Gontsch.) Boriss.

*Hymenocrater sessilifolius* Benth.

*Hypogomphia turkestanica* Bge.

*Hyssopus officinalis* L. s.l.

*Lagocheilus cuneatus* Benth.

„ *cabulicus* Benth.

*Lallemantia baldshuanica* Gontsch.  
„ *royleana* (Benth.) Benth.

*Lamium album* L.

- „ *amplexicaule* L.
- „ *rhomboideum* Benth.

*Leonurus cardiaca* L.

*Leucas mollissima* [Wall. ex] Benth.

*Lophanthus lipskyanus* Ik.-Gal. & Nevsiki

*Lycopus europaeus* L.

*Marrubium vulgare* L.  
„ *alternidens* Rech. f.  
„ *procerum* Bge.

*Mentha longifolia* (L.) Huds.

- „ *arvensis* L.\*
- „ *spicata* L. emend. Huds.\*

*Micromeria biflora* (Ham.) Benth.  
„ *subulifolia* Rech. f.

*Molucella otostegioides* Prain†

*Nepeta longibracteata* Benth.

- „ *glutinosa* Benth.
- „ *podostachys* Benth.
- „ *ob lanceolata* Rech. f.
- „ *elliptica* [Royle ex] Benth.
- „ *pubescens* Benth.

\* Cultivated.

† See page 157.

*Nepeta*—contd.

- „ *discolor* [Royle ex] Benth.
- „ *laevigata* (D. Don.) Hand.-Mazz.
- „ *govaniana* (Benth.) Benth.
- „ *erecta* (Benth.) Benth.
- „ *clarkei* Hook. f.
- „ *floccosa* Benth.
- „ *olgae* Rgl.
- „ *glechomifolia* (Dunn) Hedge
- „ *leucocyanea* Rech. f. & Koeie
- „ *pamirensis* Franch.
- „ *cataria* L.
- „ *hindostana* (Roth) Haines
- „ *brachyantha* Rech. f. & Edelb.
- „ *rugosa* Benth.
- „ *suavis* Stapf
- „ *griffithii* Hedge
- „ *pinetorum* Aitch. & Hemsl.
- „ *bellevii* Prain
- „ *juncea* Benth.
- „ *xylorhiza* Rech. f.
- „ *prainii* Duthie
- „ *heterotricha* Rech. f.
- „ *persica* Boiss.
- „ *mirantha* Bge.
- „ *sewerzowii* Rgl.
- „ *rechingeri* Hedge
- „ *pungens* (Bge.) Benth.
- „ *satureioides* Boiss.
- „ *daenensis* Boiss.
- „ *bracteata* Benth.
- „ *raphanorhiza* Benth.
- „ *spathulifera* Benth.
- „ *eriosphaera* Rech. f. & Koeie
- „ *korshinskyi* Lipsky
- „ *graciliflora* Benth.?

*Ocimum basilicum* L.\*

*Origanum vulgare* L. var. *vulgare*  
„ „ „ „ „ *glaucum*  
„ „ „ „ „ (Rech. f.) Hedge & Lamond

„ *majorana* L.\*

*Otostegia aucheri* Boiss.  
„ *limbata* (Benth.) Boiss.

*Perovskia abrotanoides* Kar.

„ *atriplicifolia* Benth.

*Phlomis bucharica* Rgl.

- „ *trineura* Rech. f.
- „ *cashmeriana* [Royle ex] Benth.
- „ *stewartii* Hook. f.
- „ *cancellata* Bge.
- „ *setigera* [Falc. ex] Benth.
- „ *bracteosa* [Royle ex] Benth.
- „ *spectabilis* [Falc. ex] Benth.
- „ *canescens* Rgl.

*Plectranthus rugosus* Wall.*Prunella vulgaris* L.*Salvia tetrodonta* Hedge

- „ *pterocalyx* Hedge
- „ "sp. nov"
- „ *cobulica* Benth.
- „ *bucharica* M. Pop.
- „ *maymanica* Hedge
- „ *compressa* Vahl
- „ *leriiifolia* Benth.
- „ *macrosiphon* Boiss.
- „ *spinosa* L.
- „ *moorcroftiana* Benth.
- „ *ariana* Hedge var. *ariana*
- „ „ „ var. *calophyta* Hedge
- „ *ceratophylla* L.
- „ *sclarea* L.
- „ *rhytidia* Benth.
- „ *nubicola* Sweet
- „ *virgata* Jacq.
- „ *nemorosa* L. s.l.
- „ *aegyptiaca* L.
- „ *santolinifolia* Boiss.
- „ *trichocalycina* Benth.
- „ *macilenta* Boiss.
- „ *plebeia* R. Br.

*Satureia hortensis* L.\**Scutellaria multicaulis* Boiss.

- „ *glutinosa* Benth.
- „ *edelbergii* Rech. f.
- „ *litvinowii* Bornm.
- „ *teucriifolia* Dunn
- „ *linearis* Benth.

*Scutellaria*—contd.

- „ *petiolata* Hemsl. & Lace
- „ *nuristanica* Rech. f.
- „ *neubaueri* Rech. f.
- „ *heydei* Hook. f.
- „ *macrochlamys* Rech. f. & Fitz
- „ *ariana* Hedge
- „ *ghorana* Hedge
- „ *stocksii* Boiss.
- „ *leptosiphon* Nevski

*Sideritis montana* L.*Stachyopsis maleolens* (Rech. f.)

Hedge

- „ *oblongata* (Schrenk) M. Pop. & Vved.

*Stachys parviflora* Benth.

- „ *floccosa* Benth.
- „ *sericea* Wall.
- „ *setifera* C. A. Mey.
- „ *trinervis* Aitch. & Hemsl.
- „ *arvensis* L.

*Teucrium royleanum* [Wall. ex] Benth.

- „ *scordium* L. var. *glabrescens* (Murata) Hedge & Lamond
- „ *scordium* L. var. *scordium* var. *serratum* (Benth.) Hedge & Lamond
- „ *polium* L.
- „ *stocksianum* Boiss. var. *patulum* Hedge & Lamond
- „ *stocksianum* var. *stocksianum* var. *incanum* (Aitch. & Hemsl.) Hedge & Lamond

*Thuspeinanta persica* (Boiss.) Briq.

- „ *brahuica* (Boiss.) Briq.

*Thymus koeieanus* Ronn.

- „ "sp. nov."
- „ *afghanicus* Ronn.

\* Cultivated.

*Zataria multiflora* Boiss.

*Ziziphora*—contd.

,, *clinopodioides* 'glabrata'  
group

*Ziziphora tenuior* L.

,, *clinopodioides* 'tomentosa'  
group

,, *clinopodioides* Lam.

#### ACKNOWLEDGMENTS

To the directors of the following institutes, thanks are due for the loan of material: Kew, British Museum (Natural History), Rawalpindi and particularly to Professor K. H. Rechinger at Vienna for sending all the rich collections from the Natural History Museum. We are also grateful to H. Roemer and D. Podlech both of Munich and to W. Frey of Tübingen for sending their collections for naming. Thanks are also due to Miss Gillian Meadows for the illustrations in this paper.